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REVIEW of EDUCATIONAL RESEARCH

Volume IV APRIL, 1934 Number 2

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The Curriculum

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Volume IV **April, 1934** **Number 2**

THE CURRICULUM

(Literature reviewed from November, 1930 to November, 1933)

Prepared by the Committee on the Curriculum: Herbert B. Bruner, John Hockett, W. E. Peik, Raleigh Schorling, and Margaret Alltucker Norton, *Chairman;* with the assistance of Leo J. Brueckner, Algernon Coleman, Beulah I. Coon, Francis D. Curtis, Frank N. Freeman, William S. Gray, Henry Harap, Ernest Horn, T. Karl Kurzband, Jacob Kwalwasser, Ethel Mealey, William R. Odell, Robert C. Pooley, Fred Strickler, Sallie B. Tannahill, Paul W. Terry, and Thomas D. Wood.

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FOREWORD

THE first issue of the *Review of Educational Research* which appeared in January, 1931, dealt with the curriculum. Successive numbers have summarized research studies and scientific investigations bearing on specific topics. This cycle of topics was completed with the publication of the December issue.

In this number the first review of the second cycle is presented. The numbers of this and subsequent cycles will cover the literature for three years only, instead of the entire literature on the subjects. This will make it possible to give a much fuller summary of the actual findings of the studies reviewed than has been possible hitherto. Up to the present the *Review of Educational Research* has been too often little but a topical list of studies in the field covered and has thus been a reference work rather than a source of reading. Everybody concerned with the production of the *Review* has realized this fact and has waited impatiently until the time when the lessened amount of material to be covered would give elbow room for fuller presentation of results and even for critical evaluation of them.

The attainment of such elbow room will depend, of course, on the faithfulness with which each author confines his review to the particular topic of the number and avoids duplicating the topics of other numbers. Now that the subjects covered by the various numbers are open to inspection, it should not be difficult for authors to do this. The desirability of confining each review to the topic of the number for which it is prepared is commended to the earnest consideration of authors and committees.

The present number is a comprehensive review of all kinds of research on the curriculum. It both recognizes the problems presented by the proposals and experiments looking toward a radical change in the whole curriculum program, on which there is thus far little scientific evidence, and summarizes in detail the conventional studies. It differs from the previous number on the curriculum in that it is organized primarily by subjects rather than by general topics. It includes a comprehensive review of the studies in higher education. Thus, a person interested in the studies on any subject or subjects can find the review of these particular studies presented compactly in the appropriate chapters. This arrangement will be found, I believe, convenient for reading or reference.

FRANK N. FREEMAN,
Chairman of the Editorial Board.

INTRODUCTION

THIS issue of the *Review of Educational Research* is confined to research studies completed during the last triennium, which bear on course of study and curriculum construction, and to an introductory chapter which discusses the use of these researches by curriculum builders.

Since most of the research studies bearing on the elementary- and secondary-school curriculum consist of separate studies in the fields of arithmetic, spelling, etc., it seemed necessary to review the researches at the elementary- and secondary-school level on the subject basis, and to group those on the teacher-training, college, and university levels in a separate chapter. Specialists in each of the subject fields were asked to review the research studies in their particular fields. To the seventeen specialists who cooperated, the committee expresses grateful appreciation. Without their generous help, the collection and review of these hundreds of researches would have been impossible.

In some subject fields far more research has been carried on during the past three years than in others. Hence, because of space limitations, some of the cooperating specialists found it difficult to treat adequately all the researches in their fields. Some met the difficulty by reviewing only the most significant studies. Others met it by failing to mention problems deserving further research.

The chairman of the committee, in editing the manuscripts of the twenty-one contributors, sought to discover recent trends in curriculum research. These six stand out:

1. *Continuance of certain types of investigations begun earlier.* In the field of spelling, for example (see pages 143 to 146), the results of research during the past three years confirm, for the most part, the findings of previous investigations and contribute to the further clarification of the fundamental problems in that field.

2. *Development and evaluation of a wealth of new materials in certain fields.* A three-year period is usually too brief a time in which to trace significant trends in a field of research. However, if one goes back only to 1925, the year of publication of the Third Yearbook of the Department of Superintendence of the National Education Association, *Research in Constructing the Elementary School Curriculum*, which reviewed many of the most significant researches made up to that time in this level, one discovers a definite trend in curriculum research. Previous to 1925, a great deal of attention was given to "economy of time," to "cutting out the dead wood," to getting the curriculum down to "minimum essentials," and to determining "shortages" through the study of errors. Much research was carried on to discover what elements in the traditional curriculum were still of value.

For example, in the field of the social studies, previous to 1925, while some research studies sought to determine problems and activities of con-

temporary society by such methods as analyzing published writings of "frontier thinkers," securing judgments of representative citizens, and by analyzing political platforms, many investigations were concerned with minimal essentials. Among the research methods used were: (1) the combining of objective measures to determine rank order lists of cities, rivers, mountains, and islands; (2) tabulating number of references made to particular items in newspapers, magazines, and "best sellers"; (3) analyzing articles in such books as the *New International Encyclopaedia* to discover issues, persons, and dates most frequently mentioned; (4) analyzing textbooks to discover percentage of space devoted to particular historical periods and to certain selected social and economic topics; in the case of civics textbooks, to discover percent of space devoted to various divisions of government.

While many researches in the social studies field during the past three years have consisted of analyses of courses of study and texts and vocabulary studies, others have been concerned with quite different issues and have followed different methods of research. Social and civic deficiencies, made more glaring by the current depression, have led to extensive and penetrating analyses of great areas of life. Studies of social trends have raised questions as to whether courses of study should not include controversial issues, and what part the school should play in social planning.

While most people would agree that a great deal more research, which seeks to discover social trends and their implications for curriculum building, is sorely needed, a beginning has been made in this direction. We are also coming to realize that a trend is much more important to understand than is any particular content of thought or any particular skill. Knowledge of a trend of civilization carries curriculum builders forward. It gives them a standard of selection, a guiding principle.

A decade or two ago, many of those engaged in curriculum research raised few questions as to the rightness of life as it was. They were wholly concerned with keeping the curriculum abreast of the times, with having it contain material which would function in the life of that day. Following the breakdown of our economic system more thought has been given to the building of a new social order.

The section on the social studies (see pages 149 to 156) reviews analyses of the aims and programs of organizations influencing the civic education of young Americans, as well as the psychology of propaganda. This section reports that tests have been given to measure the attitudes of pupils before and after taking certain history courses. Another new phase of research is the study of social concepts of children of different ages. An attempt has also been made to differentiate between knowledge of facts, understanding of ideas, and active participation as outcomes of a history course.

3. *Trend away from error count or shortages approach to more constructive attack in certain fields.* In the field of oral language, for example, the recently developed Iowa Oral Language Recording Machine makes possible

the securing of a complete and continuous record which is more accurate than shorthand or longhand transcriptions. This machine provides the basis for placing the emphasis on the constructive side of language, rather than giving the heavy weighting to the error aspects which is the natural result of studies based on incomplete samplings of pupil records. It permits the use of the so-called "error-quotient" in oral language, since this apparatus allows the investigator to get a complete and accurate as well as continuous record of the language activities of each individual child over a long period of time. Such records provide data relative to the things children of different ages talk about, the complexity of sentences used, extent and type of vocabulary, and actual language usage.

Other studies in elementary English (see section on English language and grammar, pages 146 to 148) insist upon speech opportunities through natural activities and recommend less error correction.

4. *More attention paid to pupils' abilities, interests, and attitudes in certain subject fields and in new subjectmatter groupings.* In the field of science, for example (see pages 165 to 168), studies have been made of superstitions and other unfounded beliefs, pupils' attitudes regarding them, and the extent to which remedial instruction results in the establishment of correct ideas in place of the unscientific ones previously held.

Of the research studies, published during the past three years, relating to the art curriculum (see pages 171 to 175), the largest number deal with the measurement of abilities and interests. Free expression, application of art to daily life, and the use of tests are among the recent developments in art education.

In the field of music (see pages 175 to 178), new tests are contributing valuable data to music psychology, vocational guidance, and music pedagogy. One investigator, for example, has analyzed the results of a series of music tests given to a whole school in order to discover a basis for formulating a school program of music education. Studies in the measuring and selecting of musical talent, studies in mood responses, and studies in the measurement of music appreciation developed by various methods, all offer definite help in curriculum and course of study construction.

5. *Development of more objective criteria.* For example, in such phases of the mechanics of written composition as practices in punctuation and capitalization, authoritative standards have been lacking. Former studies, based on summaries of opinions of English teachers, textbook writers, and business men have been more or less contradictory. Recent studies have selected manuals of style, used by editorial departments of publishing houses, as objective bases for a criterion for the course of study in the mechanics of written composition.

6. *An increased emphasis upon general education at the college and university levels.* Peik in Chapter IV reports that recent college and university surveys reveal an increased emphasis upon general education, a trend away from intensive and detailed specialization at the undergraduate level,

the separation of the junior and senior college, a new interest in the general education function of the junior college and in the advanced and specialized education function of the senior college, and interest in the effect of extreme departmentalization and specialization upon undergraduate instruction.

MARGARET ALLTUCKER NORTON, *Chairman,*
Committee on the Curriculum.

CHAPTER I

Plans of Curriculum Building and Research

Of what use is research to the curriculum maker? Every informed person in education, whether he measures by the number of people engaged in research, the amount of material written reporting research, or the number of projects, knows that an increasing amount of time and effort is being devoted to scientific investigation in education. This work has been of invaluable assistance to the curriculum maker in the skill phases of such subjects as arithmetic, reading, spelling, and grammar. These studies have not only provided us with much accurate information as to the skills that seem to be needed in many life situations, but have furnished us with a large amount of evidence as to the most effective methods by which a large number of skills can be attained and maintained. An increasing amount of valuable research is being undertaken also in the teaching of such fields as the social studies, science, and literature.

A perusal of the titles of research studies in almost any field, however, indicates that no small proportion of these researches is set up for the purpose of investigating a very minute part of a larger problem and in most cases deals only with those phases whose elements can be objectively measured. This is undoubtedly due in part to the fact that much of our research technic in education has been patterned after or taken over from the physical sciences and related fields. Furthermore, one cannot help wondering, when looking over the reports of much of the research that is being carried on, whether or not the peculiar equipment of the researcher, in statistics for instance, or the requirements for Ph.D. dissertations, may not have had more to do with determining the kind of project undertaken than did a consideration of the value to education the project would have. On a few problems there seem also to be more researches than are necessary for checking purposes, set up in many instances with conditions so nearly identical that no new light is thrown on the area being investigated. Witness the large number of studies attempting to determine the relative advantages of adding up or down a column. Such things as these raise the questions as to whether or not many of those engaged in curriculum research have given sufficient time to the study of the more urgent needs for, and practical uses of, research in realizing the aims of education, and as to whether or not too much of the research of the present is confined by the nature of its definition and origin to attempts to determine "the best that exists" rather than "what ought to be."

From the viewpoint of the curriculum maker, what kind of research would be most valuable at the present time? The kind of philosophy held usually dictates the pattern or architectural blueprints by which a curriculum is constructed. Conflicting philosophies then, other things being equal, compel different types of plans. Each lays its own foundation and builds

thereon in accordance with its own tenets. The thoughtful curriculum worker will put forth every effort to make optimum use of the findings of all significant, pertinent investigations in setting up his philosophy as well as in determining and testing the pattern of his curriculum.

There is an increasing number of serious-minded curriculum workers who believe that too much of the educational research up to the present time has been directed only toward determining the materials which should go into one of the individual building blocks of which the entire structure is composed. In addition they believe that too many people engaged in research are so intent upon completing a carefully planned and scientifically conducted piece of work as far as one small job is concerned, that they have lost sight of its relation to the entire structure.

These curriculum makers point out also that many research workers have not had the proper conception of the nature of real learning. They claim that the educator should assist in building personality and that hence many of his ideas must come from physiology, biology, psychology, and kindred fields, and not from the physical sciences. Concepts drawn from these fields would indicate that the individual in learning responds as a whole in most situations. These workers contend that in much of the existing educational research of the present this principle has been ignored and that many research workers, enamored of the precision of analysis to be found in the physical sciences, have set up their researches on the premise that the human being is an aggregate of parts. As a result of such a philosophy, the aim of many research workers has been to explore as thoroughly as possible each of these parts, all too often with little reference to the relation of the particular part to all the others in the reaction of the whole.

These critics claim, therefore, that much of our research has supplied building blocks for the curriculum on the assumption that the human being is like a house, and that these blocks, thoroughly tested by research, can be used without reference to the complete curriculum pattern which would be most appropriate for the learning of the individual. Scientific workers, say these critics, have spent too much of their time on attempting to improve their tools, but have not given sufficient attention to the problem of determining the kinds of materials and learning which would be most valuable for the different types of curriculum patterns which have been designed to attain certain aims of education. Finally there are those who claim that research has done very little to encourage the development of the scientific attitude of mind in the coming generation. Instead of assuming that child research should be fostered and that the scientific method should be employed by teachers and pupils in the daily work of the school, too many educational scientists have been seeking technics for solving problems connected with old educational patterns rather than promoting science as a way of life.

The argument is far from academic. Following the lead of different schools of thought, many new curriculum patterns are being formulated and given a limited trial throughout the country. Although the vast majority of schools are still working under the old scheme, an increasing number of new courses of study (especially in the fields of the social studies and the language arts) appearing in the last three years indicate some strong and definite trends away from the old forms. The temerity, or possibly we should say, the sagacity of the number of educators proposing and trying out such plans is a source of wonder when one considers the extent and degree to which they differ from the existing scheme of things. The challenge and interest of these plans no one can deny. Their wisdom, time and research will test.

Patterns for the Language Program

In the field of language and grammar these programs vary from set-ups which demand that parts of speech be learned through rigid and regimented formal drill, to situations where the pupil is given almost complete freedom. Between these two are several other patterns. In order to secure a better answer to the question of whether research workers are supplying adequately the materials needed in these various programs, there are listed below brief statements of several plans. Each of these plans calls for certain types of procedures for building a language and grammar program and a certain kind of research study. A few of these procedures for curriculum building and implications for needed research are listed under some of the plans.

1. *Learning through creating*—While creative activities seldom, if ever, constitute an entire program, they are employed so frequently that new research is required to determine such things as the most appropriate conditions for creative activity, its relation and value to other work, and the time needed to acquire the skills necessary to carry out the activity.
2. *Incidental learning*—While this type of procedure is claimed in an increasing number of situations, closer examination has revealed that in many instances the idea of complete incidental learning is academic, since in practice drill often appears. If the ideal of allowing all learning in language and grammar to be incidental were to be rigidly followed, a large number of research studies to determine the relative effect of and the time necessary for learning in the incidental way would be called for.
3. *Large life situations*—In this type of program a curriculum maker attempts to select on the appropriate age and grade level groups of naturally connected experiences or large life situations which in the main form organic wholes in the child's life. He then determines which of these life situations involve the use of language and attempts to see to it that the group of pupils experience these life situations with an optimum degree of personal happiness and social value. The table of contents of such a course of study looks more like that of an extra-curriculum or social studies course. This program, too, calls for new research in order to answer such questions as "What large life situations are appropriate under given conditions?" and "When certain large life situations are used, what are the best ways to make language contribute to their successful culmination?"
4. *Functional centers*—In these the curriculum maker attempts to set up the purposes for which language is used, such as "getting information," "giving informa-

tion," and "influencing others." Sometimes these centers are given such titles as "writing letters," "conversing," and "making reports." Here again studies are needed to determine the kinds of language required to do such things as to get and to give certain types of information, to influence others, or to write proper kinds of letters or reports.

5. *Small life experiences*—Here the course of study consists of smaller experiences, such as planning a school store (as opposed to planning, building, and using the store) and preparing parts of assembly programs. In such a set-up research studies would follow much the same procedure suggested in (2) above, namely to determine the most effective ways in which language activities and skills can contribute to a successful culmination of the experiences. There is, of course, another point of view which can be taken here, namely, that research should determine in what way these life experiences can contribute most advantageously to the acquiring of language skills.
6. *Language skills*—In this plan the curriculum maker would set up for each grade and age level those language skills which he thinks should be acquired, such as organizing ideas, choosing appropriate words, and expressing one's meaning in clear-cut sentences. The research required here, of course, should assist in finding out best ways for the individual to acquire and keep the needed skills.
7. *Learning parts of speech and their uses*—In this scheme the different sections of the course of study are captioned by such labels as nouns, pronouns, verbs, and conjunctions. Research is needed here to determine the most efficacious means of learning what the different parts of speech are and what the proper usage of each is.

Steps in Program Building

While there is much overlapping among the seven types of patterns suggested above and many curriculum workers would make use of certain elements from almost all of them, in the main they suggest programs which call for somewhat different kinds of curriculum materials and activities. To prepare these materials and activities requires various types and amounts of research. Since many programs involve a pattern that cuts across a number of the categories suggested above, brief procedures are suggested below for building a program in language and grammar.

Step 1. Determining the philosophy and the psychology which should govern the education of the child. Here there would be a discussion of such topics as adult needs in relation to child interests, learning experiences in relation to organized subjectmatter to be learned, and the learning by parts in relation to learning in organic wholes.

Step 2. Setting up the aims of education in consonance with the philosophy and psychology generally accepted by the group. (Often it may be necessary and wise to make minority reports.) For the purpose of this discussion let us assume that the course-of-study makers would accept such a general aim as the following, and would give it the Dewey-Kilpatrick interpretation: The aim of education is to enable each person to live the life that will bring him the greatest happiness as an individual and which will result in the greatest good for society.

Step 3. Setting up aims for the language and grammar sections of the language arts course that will be in harmony with those accepted for education. For example, some such general aim as the following might be agreed upon: To develop those attitudes, understandings, and skills with respect to lan-

guage which will enable the child to live the happiest life individually, and the one most effective for the social good.

Step 4. Selecting those large life experiences (or situations) which, if engaged in, will give greatest promise of leading the child to a realization of the aim stated in Step 3. For example, such situations as the following might be proposed:

First grade—Listening to or reading an interesting story and discussing and dramatizing it; planning for and carrying out a birthday party; a social studies unit "How the Home and Community Help One Another."

Third grade—Engaging in individual or group "creative activities" such as making pottery, painting, or dancing; learning how people travel; playing at being Indians.

Fifth grade—An undertaking for the good of the community such as taking part in a clean-up campaign, gardening, or constructing playground apparatus; a social studies unit such as "Living in the Days of the Colonies."

Seventh grade—Preparing and carrying through an assembly program; enjoying stories, books, music, or art; a social studies unit such as "How Communication Binds People Together."

Tenth grade—Preparing and carrying through a pageant; planning and carrying through social affairs; looking into the future with some of our frontier thinkers; a social studies unit such as "Housing."

Step 5. Analyzing the large life situations suggested in Step 4 in order to determine which activities involve the use of language. For example, junior high-school pupils in developing a unit on "How Communication Binds People Together" might engage in some of the following activities, all of which involve the use of language: visiting newspaper and telegraph offices and radio stations; discussing contemporary problems such as technological advances in communication, the use of propaganda and high-powered advertising, the extent to which international goodwill and understanding have been extended through more effective means of communication; and planning a culminating activity through which the members of the group might demonstrate to others some of the things they have learned.

Step 6. Analyzing the situations in which language is used to determine the way in which it can be made to serve best the needs of the individual and of the group. An analysis of this type will show that language is used for such purposes as (1) getting information; (2) giving information; (3) influencing others; (4) getting group action; and (5) sharing experiences.

Step 7. Analyzing the large life experiences listed under Step 4 to determine the smaller experiences of which they consist and grouping the smaller experiences according to the major purposes for using language listed in Step 6. For example, the birthday party (a large life situation) consists of such items as planning the party, inviting the guests, buying the prizes, and decorating the room or the house.

Step 8. Determining the language activities needed in carrying through the large life situation with all its smaller experiences in the most satisfying way, personally and socially. This might involve in the birthday party such activities as carrying on informal discussions, listening while others talked, and writing letters.

Step 9. Developing specific language skills through the experience of the birthday party such as pronouncing words correctly, selecting words which express meaning most precisely, finding words to describe new experiences, and writing interesting sentences and letters. This obviously involves, of course, the use of the different parts of speech.

Research Assistance Available

If a curriculum maker in the field of language and grammar were to accept in general the steps outlined above and turn to research findings for assistance in constructing such a program, he would find a very uneven amount of help in the different steps. In the first three, which constitute philosophical background, he would find little except that which supports the social utility point of view, which, as has been pointed out by Greene (128: 101-7) produces a procedure in elementary language which is entirely inadequate. While this type of work may not be called research, there is urgent need for more consideration of philosophical backgrounds which should be built.

For Step 4, research obviously is needed, not only in the teaching of language and grammar but in all fields of subjectmatter.

For Step 6 research is required which will attempt to determine the most effective use of language in getting information, giving information, and the like, *for the purposes determined under Steps 1, 2, and 3 and in the light of the psychology and philosophy which dictates that learning shall be in natural, large situations, and that the child shall be treated as a responding whole individual rather than as a composite of unrelated parts.*

For Steps 7, 8, and 9, there is already a large amount of very excellent research in the field of language and grammar, but this needs to be reinterpreted in the light of differing psychologies and philosophies.

Whether or not a research worker subscribes to the point of view expressed and implied in the preceding set-up, it is obvious that new, and in many instances, different kinds of research material are needed for the curriculum patterns or architectural plans that are prescribed by certain philosophies and psychologies as well as by practice in a rapidly increasing number of schools.

Patterns for the Social Science Program

Similar illustrations can be drawn from other fields. For instance, in that phase of the social sciences where the teaching of modern problems is considered, such patterns as the following are clearly discernible.

1. The modern problems approach. Here problems such as unemployment, nationalism, and internationalism, the place of the government in business, funds and the financial system, and housing are discussed without reference to subjectmatter lines. History, geography, civics, politics, economics, sociology, and esthetics are called upon as needed. Most of the time is spent on the modern problem itself.
2. A pattern which includes a careful study of the historical background of each modern problem, as well as a study of the modern problem itself. In transportation, for instance, the history of transportation from the beginning of time is taken up before the present problems are attacked.
3. A pattern whereby history is taught according to chronological epochs, but 10 to 50 percent of the time is given over to discussion of related modern problems. For instance, in the study of Egypt, the agricultural problems of that day are contrasted with those of the present time. In the study of Phoenicia, trade and ex-

change problems are contrasted, whereas in the study of Greece, community and city building is discussed.

4. The study of chronological history with only sporadic reference, if any, to modern problems.

There are, of course, many other patterns in social studies involving such questions as the complete separation of subject fields, the correlation or fusion of subject fields, and the completely integrated program. Here again the research worker should take into account the whole structure or pattern for which he is preparing his material.

Conclusion

The discussion in this section has been presented from the standpoint of the curriculum maker. So many different and untested patterns and programs are being attempted today that the thinking curriculum maker naturally has grave doubts as to their wisdom and value. As never before he feels the need for the comfort and assurance that is given by sound and appropriate research. He realizes, however, that research can never take the place of accurate, critical thinking in accordance with a system of values.

The argument here has been (1) that the increasing amount of scientific investigation has been of great value to the curriculum maker; (2) that the trend towards new curriculum patterns is so marked that research studies which will supply both building materials for these plans and means for testing materials now in use are badly needed; (3) that a research worker in selecting and carrying through a project should keep in mind the whole structure as well as the individual job; and (4) that research in the curriculum in addition to attempting to determine "the best of what exists" should turn its attention to the question of attempting to find out "what ought to be." This will require a more comprehensive definition for the term research than is now accepted by many workers. The fact that one has been working on a precisely defined and delimited problem does imply, of course, that he may not accept the more comprehensive definition implied here.

CHAPTER II

Curriculum Investigations at the Elementary- and Secondary-School Levels

A. Reading

DURING the period covered by this report, approximately three hundred fifty scientific studies relating to reading were published. This brief report summarizes only those studies which relate to the desirability of reading as a school subject, to the nature, selection, and organization of curriculum content in reading, and to the reading interests of children. Other problems, such as reading in the content fields, methods of teaching reading, reading tests and achievements, and diagnosis and remedial teaching will be considered in other issues of the *Review of Educational Research.*

Shall reading be taught?—In order to determine the desirability of systematic instruction in reading, Bonar (3) summarized related evidence in more than a score of studies. He concluded that "there is a distinct place for reading in the program of studies," that the time allotment for reading can be greatly reduced if systematic guidance in reading is provided in the content fields, that achievement in reading at the close of the sixth grade is not adequate in a surprisingly large percentage of cases to enable pupils to read and study secondary-school subjects successfully, and that special provision should be made for general and specific reading deficiencies beyond the sixth grade.

When reading should begin—Morphett and Washburne (20) studied the progress of first-grade children of different chronological and mental ages in vocabulary mastery, oral reading, and general reading achievement, and concluded that a mental age of six and one-half years is the optimum time at which to begin instruction in reading. However, some pupils between the mental ages of six and six and one-half years made very satisfactory progress. The importance of adequate preparation before reading is introduced is further emphasized in studies reported by Raybold (21) who found that mental immaturity, "not necessarily low intelligence quotients," was the chief cause of non-promotion in the 1B grade.

Time allotment—Holman (15) studied the time allotment given to elementary subjects in Missouri and found wide variations in practice. The average weekly allotment in minutes by grades follows: grade one, 379; grade two, 331; grade three, 270; grade four, 224; grade five, 185; grade six, 181; grade seven, 170; grade eight, 177.

Successive emphases in reading content—Two significant studies of the successive emphases in reading content in America have been published. Smith (25) attacked the problem somewhat broadly and identified five successive periods of emphasis: the religious (1607-1776); the nationalistic-moralistic (1776-1840); the secular (1840-1880); the cultural (1880-

1918); and the utilitarian, with emphasis upon diversity of interests and purposes in reading (1918-1925). Robinson (23) studied the content of school readers published during the last one hundred and fifty years or more and classified them into five periods having different objectives which correspond closely with those identified by Smith. He further pointed out that the trend during the period from 1915 to 1926 has been to give large emphasis to the selection of reading materials. The two chief factors considered in this connection have been "the interest value of the material" and its "proper classification as to the age and grade of the children."

Content of readers—Several years ago, studies of the content of readers revealed a surprising amount of overlapping. In order to determine recent trends in this connection, Cooper (5) studied the content of sixteen sets of recently published readers and compared her findings with those of previous studies. Each set included from three to seven books. The results show distinct progress during recent years in the elimination of duplicating selections. The chief consideration now is, do the books contain materials "suitable to the child from the standpoint of interest and educational and cultural value"? A partial answer to this question has been suggested by Ide and Oberg (17) who compared the content of present-day school readers with children's interests and reading objectives. Their study led to the conclusion that recent readers have been directly affected by current objectives of teaching reading. These findings have been further verified by Danforth (6) who studied the purposes given in supplementary readers for the selection and arrangement of the materials. The two main trends revealed are a consideration of (a) children's interests, and (b) the value of material to children. Other purposes emphasized are the development of desirable powers, abilities, and characteristics in children.

Several studies have been made to determine the extent to which the content of readers has been influenced by materials in other subjects. For example, Lacey (19) studied representative primers and first, second, and third readers to determine the influence of the social studies on their content. It was found that the social studies material included was "very simple and extremely thin" and that as a result readers supply only a limited amount of information in that field. Gunderson (13) studied the geographical materials contained in readers for the first three grades and found that they form only "a minor proportion of the total amount of material. However, the percentage of geographical material increases from grade to grade." These findings indicate clearly that whereas some material from the content fields is included in readers, it is not sufficient to provide young children with the understandings needed in contemporary life.

The selection of reading materials—Very few studies have been reported relating to the selection of appropriate reading materials. A unique procedure was reported by Donovan (7) in selecting a primer for use in a non-English-speaking community. Pupils from English-speaking and

non-English-speaking groups were tested on the important or key words of eight primers. As a result, the primer offering the fewest vocabulary difficulties for the latter group was selected. A second study by Harring (14) was concerned with the selection of the most appropriate primers to use in supplementing a basal text. In order to secure needed information, an analysis was made of fifteen primers to determine the number of different words, the total word count, the average number of repetitions, and the average number of new words per page. A table was then prepared showing the order in which the various books supplemented the vocabulary in each book of the series.

Grade placement—Following an analytical study by Huber, Bruner, and Curry (16) of the grade placement of poems, Stone (27) concluded "that interest appeal is not a satisfactory sole criterion for grade location of reading selections. Other factors, such as difficulty of comprehension as determined by vocabulary burden, sentence structure, and tests of comprehension of the significant meanings by the pupils" should also be considered. Additional evidence in support of Stone's contention was secured by Staats (26) who made a vocabulary study of eighty-seven poems recommended as suitable for first-grade children by Huber, Bruner, and Curry (16). The results showed that the vocabulary used far exceeds most first-grade vocabulary lists. They "may easily indicate the reason children do not like to read poetry and why teachers have difficulty teaching them to read it."

Workbooks—The workbook has assumed large importance during recent years in reading as well as in other subjects. Goodrich (12) summarized reports from 245 schools using workbooks and concluded:

> . . . the workbook is not an absolute necessity, for it is possible to do efficient school work without it. . . . It is not a luxury, however, in the sense that the chief reasons for its use are convenience or pleasure, for it has sound educational values. These values are realized only when the workbook is well selected and intelligently used. Even the best workbook is no panacea for educational ills. It is, however, a tool that makes it possible for the skilled workman to do a better piece of work.

Children's interests in reading—Gates (10) summarized a series of relevant studies and concluded that the general characteristics of reading material that contribute most to the interest of primary children are surprise, liveliness, animalness, conversation, humor, and plot. He also characterized the type of reading situation preferred by children as "a serial or consecutive course of doings, held together within the unity of progressively growing occupation or project." In a study by Gates, Peardon, and Sartorius (11) concerning the types of material preferred in the primary grades, work and play exercises, narratives, and informational selections were designated as first choices in the order given. As the authors point out, the comparisons are in a sense misleading since the interest in each was partly borrowed from the others.

Dowell and Garrison (8) determined the most popular selections in third-grade readers and by analysis identified the most popular interest

elements: kindness, bravery, happiness and beauty, humor, animals, story quality, achievement, love, Bible stories, and wisdom. Kealy (18) found that children like "spiritual stories" provided they contain the same elements that make other kinds of stories interesting. Rinehart (22) found that junior high-school pupils were interested primarily in fiction and especially in short stories and books of travel and biography. A study by Cain and Brown (4) showed that more than half the books read by senior high-school children had some literary merit. The percentage of harmful books was very small. Those having no special merit were mystery, detective, murder, and light love stories. Beinhart (2) found that mentally retarded boys chose stories far below their age level. On the other hand, Witty and Lehman (28) found that the readings reported by gifted children were of a decidedly superior type.

Books for children—In an effort to develop a booklist which reflects the judgments expressed in most previous studies, Garrison and Hackworth (9) made a comparative study of ten booklists. The result of their work was a list of ten books per grade, for grades one to eight, recommended in as many as four of the ten lists. Because of wide variation in the titles recommended in each of the ten lists and in their grade placement, the investigators recommended continued research in this field. An example of the difference in booklists is presented by Shuttleworth (24) who compared the *Winnetka Graded Book List* and *A Guide to Literature for Character Training* with respect to grade placement and the relative worth and interest value of books. He found, for example, that books placed in the first three grades in the *Guide* are often assigned to grades four and five in the *Winnetka List;* books placed in grades eight, nine, and ten in the former often appear in the seventh and eighth grades in the latter. On the other hand, there is very close agreement in the estimates of the merit of the books in the two lists.

Literature in the elementary school—The importance of literature in the elementary-school curriculum was emphasized by Bamberger and Broening (1) who prepared a very illuminating and helpful summary of experimental studies and teaching experiences in that field. It considers the nature of appreciation, children's interests and literature, the preparation of a unit in literature, poetry in the elementary school, and an articulated program of literature for the elementary grades.

Concluding statement—The studies of the past three years have contributed no startling discoveries, neither do they justify any radical reorganization of the reading curriculum. They do supply evidence of the need of a definite program of reading instruction and emphasize the value of reading materials that are interesting and carefully graded and that include content of distinct educational value.

B. Handwriting

A recent article by Harap (33) classifies the curriculum problems in handwriting. It serves as a guide in reviewing the investigations in the field

and in getting a notion of the problems which require further investigation. The essential features of a course of study in handwriting, according to Harap, are:

1. An introductory statement, which should include basic views on education in general, basic views on important issues in handwriting, and general suggestions on procedure which apply to all the units of instruction.
2. Determination of objectives.
3. Organization of objectives.
4. Construction of units of work.
5. Directions concerning reviews and tests.
6. Directions for adapting instruction to individual differences.

The investigations of the preceding three years which fall within the field of the curriculum, as distinguished from methods or psychology of learning, happen to come entirely under the second head, determination of objectives. One of them concerns the question of the general value of handwriting as a subject of instruction, and the remainder deal with a more specific problem, namely, the best form of letters to use, whether cursive or manuscript.

General value of handwriting—Shepherd (37) dealt with the effect of quality of handwriting on teachers' estimates of the merit of English compositions. A difference of 60 points on the Ayres Scale appears to make a large and reliable difference in the mark given by teachers. This confirms an earlier study made by James (34).

Manuscript vs. cursive writing—Nine studies have been discovered dealing with some aspect of the question of manuscript writing vs. cursive writing. Since some of these were reviewed in Volume I, Number 5, of this *Review*, they will be summarized only briefly here.

The rate of adoption of manuscript writing was studied by Keim (35) who found that this style gained headway most rapidly in the three years preceding 1929, and that it has been adopted chiefly in private schools. That the two styles require or encourage a somewhat different type of movement was shown by Gray (32) in a laboratory study. Turner (38) found that manuscript writing was more legible in the first six grades and more rapid in the first five. Gates and Brown (31) on the other hand, found that, while manuscript writing was more rapid in the first three grades, cursive was more rapid in grades four to six. Manuscript writing was somewhat more legible in all grades except when writing was at top speed. That manuscript writing in the first grade facilitates learning to read appears to have been demonstrated in a minor experiment by Long and Mayer (36) and a fairly extensive experiment by Voorhis (39). If manuscript writing is used at the beginning, the question arises as to when, if ever, the transition shall be made. Evidence on this point is inadequate. Arnold (29), on observational evidence, argued for the beginning of the fourth grade. Wahlert (40) reported a shift in the second grade. Crider (30) showed that the new form becomes established in from six months

to a year if the transfer is made late. A conclusive answer on this point awaits further study.

C. Arithmetic

Enriching the teaching of arithmetic—The Twenty-ninth Yearbook of the National Society for the Study of Education took a strong stand against what was termed the "reductionist point of view" in curriculum making in arithmetic. Research has in the past been largely limited to the discovery of the arithmetic processes used by various groups of individuals in the affairs of everyday life. On the basis of such studies numerous topics were eliminated from the curriculum. Others were greatly curtailed. Little research had been undertaken to determine ways in which the teaching of arithmetic might be enriched (for example, through the addition of new topics of demonstrated value, which would show how number functions), or might be made to function more effectively, in the social, industrial, and economic affairs of society. As one possible basis for such a plan of enrichment, the reviewing committee of the Yearbook discussed four major functions of arithmetic instruction: the computational, informational, sociological, and psychological functions.

Recent research shows a definite effort to expand the arithmetic curriculum in such ways as to include materials involving these four functions. Brueckner (47) listed twelve major themes which might underlie arithmetic instruction. Only one of them dealt directly with the computational function; the other eleven stressed various aspects of the informational, sociological, and psychological functions of the subject. In another article, Brueckner (49) cited social situations in which the need for consideration of valuable quantitative relations frequently arise. Brueckner (46) also suggested, as one basis for selecting curriculum units, the social problems listed by Hockett (58) which dealt with quantitative aspects of topics usually taught in arithmetic classes, such as banking, taxation, wages, investments, and the like. The purpose of such units would be to insure an understanding of present-day social institutions and their limitations as well as the directions in which one might look for improvement. Several other writers (42, 59, 60) published reports of the experimental development of curriculum units suitable for various grade levels. Units of this type also appeared in several courses of study, for example, those of Cleveland (51) and South Dakota (66).

Various groups recognized the need of making available for teachers suitable instructional materials dealing with social aspects of the arithmetic curriculum. The American Council on Education (41) published several pamphlets dealing with such topics as the history of numbers, the development of weights and measures, and the story of methods of telling time. Much more material of this type is needed.

The necessity of enriching the content of courses in the teaching of arithmetic in teacher-training institutions was clearly demonstrated by

Brueckner and his co-workers (44). By means of a checklist submitted to teachers in the Middle West an analysis was made of the points on which teachers of arithmetic felt the greatest need of supervisory assistance. An overwhelming proportion felt the need of help on phases of instruction dealing with the informational, sociological, and psychological functions of the subject. Relatively few expressed the need for help on points related to the computational function.

Genetic studies—The genetic factor as a guide in curriculum construction was the basis of several important studies. MacLatchy (61) and Woody (71, 72) investigated the number ideas of young children and the types of arithmetic information they possess. Their studies confirm earlier ones which showed that young children acquire incidentally through their informal activities outside of school a much larger arithmetic background than has been believed possible. The curriculum maker in the primary grades should recognize this important fact, reduce the emphasis on formal arithmetic in these grades, and provide rich units of instruction in which number may function in meaningful ways. Several studies dealt with the development of the arithmetic vocabulary. Buswell and John (50) studied the growth of the arithmetic vocabulary and number concepts in grades one to six. Woody (73) analyzed various types of reading material to determine the nature and amount of arithmetic to which pupils are exposed in other school subjects. Pressey and Moore (65) by means of tests made a study of the growth of mathematical vocabulary from grade three through the high school. Unfortunately these studies dealt largely with the vocabulary involved in the computational function, and failed to consider other forms of quantitative relationships.

Studies in transfer—The question of transfer has definite bearing on curriculum construction. Much research in arithmetic has been devoted to the detailed analysis of bonds and skills that should be established. If one assumes that there is little if any transfer from bond to bond or from step to step in the same process, many difficulties arise in arranging materials of instruction. If it can be shown that there is a fairly large amount of transfer, problems of curriculum construction are greatly simplified. Two important studies, those of Olander and Sharp (63) and Overman (64), showed that there is a great deal of transfer among number combinations and types of examples in the same process. It would therefore appear that much more emphasis may be given to the idea of generalized ideas and concepts, by showing interrelationships from process to process and from topic to topic. Instead of teaching arithmetic as a large number of unrelated facts and skills, instruction should seek to develop basic generalized concepts and configurations useful in many different situations. The possibility of greatly simplifying the teaching of arithmetic, on the assumption that there is considerable transfer, is clearly demonstrated by the analysis of long division by Grossnickle (54, 55, 56, 57). Grossnickle and others revealed the large number of facts that constitute the process of long division. If each of them must be taught to the point of mastery, there will be

little time left for other functions than the computational. The awareness of the fact that there is transfer "in useful amounts" should lead to the reduction of stress on abstract drill on number processes, and to the inclusion of material which will make arithmetic more vital and meaningful to the pupils. Neulen (62) made a study of problem solving.

Gradation of subjectmatter—The major contribution to the problem of gradation of subjectmatter in arithmetic was made in 1930 by Washburne and the Committee of Seven (68). Several reports of additional studies bearing on other aspects of the same problem have appeared (53, 67, 69). All of these studies dealt with the purely computational aspects of arithmetic processes. The Committee would perform a valuable service if it would undertaké to extend its research into the field of social arithmetic.

Wilson (70) reported the value of an enriched program of arithmetic in the lower elementary grades. In the schools that participated in this study, arithmetic was not taught as a formal subject in the first two grades. In place of formal drill work on number facts and processes, in the second grade a wide variety of activities and units of work emphasizing the meaning and applications of number in the lives of children was introduced. In the third grade, this program of enrichment was somewhat reduced and formal drill work on number processes with specially prepared practice materials was begun. The results of tests in computation, administered at the end of the third grade, showed a much higher level of performance of pupils than is usually found. This finding is in harmony with those of earlier studies of the grade in which to begin arithmetic instruction, most of which however involved only the teaching of computational processes.

Wilson's study suggests the possibility of reorganizing arithmetic instruction in the lower grades so as to reduce the stress placed on computation and to treat more fully the informational, sociological, and psychological aspects of the subject. Such a practice would also be in accordance with the findings of the Committee of Seven which show that many processes in arithmetic are now taught to pupils whose mental level is not sufficiently high to enable them to master the topics in the grades in which they are now taught. Several studies dealt with factors related to the difficulty of problems. Brownell and Stretch (43) found that there was little relationship between the pupils' familiarity with the situation involved in a problem and its difficulty. Brueckner and Irving (48) showed that there was a large difference in the average level of difficulty of problems in ten fifth-grade arithmetic textbooks. In some books the average percent of correct solutions of a random selection of problems covering the year's work was less than forty, indicating that the problems were undoubtedly too difficult for the pupils. Brueckner and Laumann (45) showed that estimates of the difficulty of problems on the basis of a scale of known value yielded reliable estimates of difficulty. They suggested that this technic might well be used by committees comparing the merits of textbooks, instead of the more laborious method of testing pupils to find the difficulty of problems.

The California State Department of Education (52) published a detailed report of a statistical study of the merits of ten textbooks in arithmetic. Its procedures suggest methods of analysis that can be used by other groups. It should be pointed out that, in all of these studies of the difficulty of arithmetic problems, the problem has been defined as a question with facts given, the answer to the problem being found by manipulating the numbers stated. In not a single case did any study deal with the factors that might be involved in the solution of problems of the type one encounters in life outside the school, which are solved not by computation but by thinking through the various social and economic relationships that are included in them. This point may be made clear by analyzing the types of questions that would arise when an individual weighs the issues involved, say in buying a suit of clothes, a home, or a bicycle. Problems in arithmetic should be thought of as including the types of social problems listed by Hockett (58), many of which may be solved without any direct computation whatsoever.

D. Spelling

The results of research in spelling during the three years ending November 1, 1933, confirm, for the most part, the findings of previous investigations and contribute to the further clarification of the fundamental problems in this field. Only published studies are here reviewed, but many significant investigations, for the most part unpublished theses, were utilized in appraising the trend of research. While not reviewed in this chapter, attention should be called to the annotated bibliographies by Foran and Sister Mary Carmela (84) and to an excellent series of summaries by Foran (83, 85, 86, 87, 88).

The course of study—The most important new data pertaining to the course of study are those reported by Fitzgerald (82). In analyzing 460,906 running words of the friendly letters of children in the fourth, fifth, and sixth grades, he found 7340 different words, 44.4 percent of which were misspelled by one or more pupils. He estimated that approximately half of all of the spelling errors which he found would be eliminated by learning 148 words, nearly all of high frequency in Horn's Basic Writing Vocabulary. His data are in harmony with those of other investigations, published and unpublished, in indicating that the overlap between the writing needs of children and adults is so large as to furnish, grade by grade, an abundance of words which pertain to the child's present needs and to his future needs as well. The complete vocabulary, with frequencies, of this and other studies of children's letters should be made available through publication. There is need also for further research to determine the words which children use in connection with the writing done in school. Earlier investigations of children's themes are of very limited use because frequencies were not reported.

The only significant original research pertaining to adult writing is a minor study by Kramer (99) of the words misspelled by adults. Coleman (78) found fault with existing studies of adult vocabularies but offered no original data of his own, and misinterpretations, as well as errors in his statement of matters of fact, indicate not only a lack of familiarity with the detailed investigations in this field but also a failure to understand the methods of research, the practical limitations of sampling, or the significance of reported results. Present data, if adequately understood and properly utilized, are apparently reasonably dependable for practical use in spelling instruction. Our knowledge will no doubt be expanded and perfected from time to time by additional and more refined samplings.

Methods of instruction—Important investigations by Mendenhall (102, 103), Thompson (110), Zyve (116), and Sartorius (108), although published in the period 1930-33, are only mentioned here, since they were reviewed in more detail by Zyve (117) and by Breed (75) in earlier issues of the *Review of Educational Research*. Prehm (106) obtained unusually large improvement in both spelling efficiency and morale, through the use of a combined group and individualized attack. Guiler (95), Connelly (79), and Anderson and Traxler (74) at the college, high-school, and junior high-school levels respectively, reported satisfactory results in group work, using typically modern procedures. Gates and Bennett (92), comparing the results obtained by two and three tests a week, concluded that, except perhaps in the earlier grades, the differences were not significant and that the development of interest and the growth of ability in learning as a result of skillful teaching and supervision were among the most significant factors. In a second investigation, comparing the test-study and the study-test method, Gates (91) reported the former to be slightly superior in grades high three to eight; the latter in grades two and low three. Hartmann (96) concluded that spelling ability is largely dependent upon one special form of visual reaction rather than upon general superiority in any sense modality. Garrison and Heard (89) reported that phonetic training had a beneficial effect upon spelling.

King (98), continuing the investigation of the possibilities and limitations of rationalization begun by Archer, Carroll, Horn, Mendenhall, and Sartorius, reported the effect of teaching seven rules selected on the basis of pertinency to words in common use. Her data, when considered with those of previous investigations, indicate that, while certain types of rationalization may be found to have an important although limited place in teaching spelling, further research is needed not only to discover the most useful bases for generalization but also to determine the effectiveness and limitations of various teaching procedures.

Spelling disabilities—A number of interesting recent investigations deal with the diagnosis and treatment of spelling disability. Wickey and Lambader (113) tabulated the types of errors in the misspellings made by 1664 pupils and listed the frequent causes of misspellings. Brueckner and Melby (76) and Garver (90) also classified probable causes of mis-

spellings. Sartorius (108) made a suggestive analysis of work elements in relation to spelling errors. Prehm (106) reported unusually successful results in a year's program of individual and remedial instruction at the fourth-grade level. Williamson (114) rejected the idea of special disabilities in spelling, and concluded that spelling ability is closely related to intelligence.

Gilbert (94) found significant differences in the eye movements of good and poor spellers in studying spelling and concluded that a definite method of instruction should be provided in the early grades in order that bad study habits be prevented. In a subsequent but limited investigation he (93) found evidence that flash card exercises speeded up perception, with accompanying improvement in spelling. Carroll (77) found that bright and dull children showed marked differences in the kinds of spelling errors which they make, in the difficulties which apparently confront them, and in their ability in phonetic generalization.

Lesch (100) classified the errors found in the spontaneous writing of feeble-minded German children. Ley (101), as a result of investigating subjects having marked difficulties in spelling, concluded that the orthographic function is a special synthesis at a relatively high level. Selzer (109) regarded many spelling disabilities as symptoms of a disturbance of lateral cerebral dominance. Ulrich (112) interpreted certain cases of misspellings in terms of hidden conflicts in which letters are the equivalents of words which the writer wishes to keep hidden. Roback (107) attributed accidental misspellings in rapid writing to the complementary neural processes of preservation and assimilation.

The diagnosis and remedial treatment of spelling disabilities, including the study of "conflicts" and personality traits, offers one of the most fertile fields for further investigations. Scarcely less promising, although of less immediate practical value, is the investigation of the personality traits of persons of very superior spelling ability. Additional investigations are needed to determine the relative efficiency of various administrative patterns in teaching spelling, the most effective study procedures, and the amount and nature of incidental learning. The greatest caution is needed in drawing conclusions from investigations which compare one method of teaching with another. Such experiments are very difficult to control. Two school systems, with the same textbook and the same general plan of teaching, often show differences in accomplishment which are as great as those reported between groups using different books and different methods of instruction. Often what is measured in experiments is not the difference between the methods per se so much as difference in the insight, skill, and enthusiasm with which the methods happen to be taught in the experiments.

Tests—Recent research in the teaching of spelling has focused upon the refinement of test technics. Cook (80), as a result of an unusually elaborate and refined investigation, reported methods for the selection of test items, selection of test technics for presenting items, and the optimum time of

administration for a given test. The difficulty of test items in relation to their reliability was investigated by Thurstone (111). Phillips (105) compared two-response and dictated recall types of tests.

Courtis (104) raised some interesting questions on tests and standards by treating test results and individual differences according to his theory of isochrons. In a controversy on test items Wilson (115) held that words in the spelling test must be justified on the basis of their warranted appearance in the spelling course of study, while Kelley (97) emphasized the discriminating quality of the words of the test.

It seems important that test technics should be kept strictly subservient to and integrated with the attainment of the specific objectives of instruction. On the other hand, it is useful to have tests which will give a valid and reliable measure of the ability to spell words which have been found to be socially useful, regardless of whether or not these words appear in the course of study. Cook's technics (80) seem to provide guidance in making such tests. There is also great need for tests for the diagnostic study of spelling disabilities, and while the development of such tests has been begun, they are chiefly a matter for future research.

E. English Language and Grammar

For convenience in classification and discussion, the studies reviewed in this section are divided into four categories: curriculum and supervision, English usage, elementary English, and secondary English. In range of utility many of the items in one group will be found partially or fully applicable in one or more of the others, as for example, the report of Lyman (139) and that of the Wisconsin English Teachers (152).

Curriculum and supervision—From the point of view of permanent influence on the language curriculum, two studies of the last triennium are outstanding. That of Lyman (139) is in itself a bibliographical study of the research activities in all the fields of English, Chapter III being devoted especially to language and composition. The principal findings are that (a) the traditional curriculum is giving way to a curriculum of activities closely parallel to the activities of daily life; (b) there are signs of the growth of a cumulative-maintenance program; and (c) individual needs, pupil initiative, and pupil self-appraisal are finding important places in curriculum making. There are also several chapters on the relationship of English to other school subjects.

The five-year nationwide study, reported by Achilles (118) was undertaken by the Psychological Corporation in cooperation with the English Council and is directed by L. J. O'Rourke. Its purpose is to provide essential data for the improvement of instruction in English usage, reading and vocabulary, and for more effective allocation of subjectmatter within curriculums.

The curriculum study of Denver (125) is an example of the articulation of language and usage study through the six years of high-school work. It is based principally on what are called "functional centers" which repre-

sent the personal and social language needs of modern life. Throughout the grades stress is placed on the grammar which functions in the sentence, with commendably small attention to mere error-correction. Alvey's study (120) attacked the stubborn problem of the determination of suitable centers of organization for composition activities and chose functional centers.

The adaptation of the English curriculum to a changing world is the theme of Hatfield (132). A checklist of the obvious social changes and possible corresponding changes in the teaching of English was sent to thirty-five educational theorists and teachers. The suggested changes which were voted most important included both literature and language. More detailed types of research needed in the teaching of English are outlined by Symonds (148).

English usage—Selected researches in contemporary usage up to April, 1931, have been summarized by Greene (129). The past three years have witnessed great activity in the study of usage. J. P. Leonard (137) reported the findings of groups of judges on punctuation and word usage. The punctuation study was based on prepared sentences sent to large numbers of American and British publishers; the usage study was based on ballots sent to linguists, teachers of English, editors, business men, etc. Both studies reveal more liberal tendencies than are taught in the schools. Pooley (143, 144) analyzed the rules for good usage in sixteen widely-used textbooks on the elementary, secondary, and college levels, to compare them with the actual use of language as determined from objective studies like that of Leonard. The rules were found to preserve many distinctions not found in current use.

For the teaching of usage in the light of recent studies, the English teachers of Wisconsin (152) prepared a bulletin for the use of the classroom teacher. Sections are devoted to the problems of usage on the elementary, junior, and senior high-school levels. A study of current colloquialisms, current grammar, slang, and form-tests in English was made by students of New York University (141). The findings show thorough observations of current use, but the judgments on the observations are in many cases too hasty. Cope (124) reported on how a usage conscience may be developed through cooperation. Pulliam (146) attempted to answer the question, "Should formal grammar be discarded?" by summarizing the researches bearing on this problem.

Elementary English—By far the most elaborate research program in English now under way is that of Greene (128). It covers: (a) special research technics peculiar to the field; (b) problems underlying the philosophy of the subject itself; (c) problems involving the determination of the content and grade placement of the course of study; (d) problems involving the experimental development and evaluation of methods of teaching; and (e) problems involved in the evaluation of achievement in the subject. The report enumerates a number of projects under way in each of the divisions. Detailed discussion of the program by Trabue, Ashbaugh, Smith, Symonds, and Pooley is included.

Guiler (131) reported a large scale survey of English usage in elementary schools; 38,530 Ohio pupils were tested in the elements of English usage. The results are as follows: pupils show a steady gain from grade to grade in ability to detect errors; there are wide differences in ability in each grade, with great overlapping between grades; there is surprising persistence of error. The study concludes with important curriculum considerations. Mabie (140) and Bardwell (121) reported briefly the results of curriculum study in elementary English in the public schools of Madison, Wisconsin. Of significance to curriculum builders is their insistence upon the encouragement of speech opportunities through natural activities, and the recommendation of much less error correction than is generally felt necessary. Barnes (122) analyzed the behavior factors underlying the development of skills in speaking and writing. Pressey and Campbell (145) and Guiler (130) dealt with the causes of children's errors in capitalization. The foreign language errors of Chicago children were reported by Brown (123). Goodykoontz (127) investigated the factors which influence and determine the making of curriculums in elementary English. They are: (a) inclusion of new and more material; (b) new types of organization; (c) functional analysis; (d) textbook changes; (e) more knowledge of the pupil; (f) continued research. Trabue (150) also gave valuable curriculum considerations.

Secondary English—The condition of secondary English in the United States is revealed in Smith's report (147) under the National Survey of Secondary Education. The contents include analyses of courses of study, studies of curriculum trends, time allotments in secondary English, and specific trends and methods in composition, grammar, and literature. In language and grammar the report revealed far too much emphasis still upon grammar for its own sake, and the overdoing of error-drilling to the neglect of creative activities. The implications of this report were fully discussed by Koos (136).

The content and organization of secondary English received the attention of Alvey (119), Fowler (126), Hinchman (133), S. A. Leonard (138), Pollack (142), and Tressler (151). Tressler dealt with the nature of the conventions of language, the selection of those to be taught, and their grade placement. Language and thinking in the secondary school were discussed by Thomas (149). Hinchman (133) offered an experiment in organizing a ninth-grade course of study for retarded students. Klopp (135), from his study of tenth-grade classes, urged that diagnostic tests be given to determine grammatical errors and that remedial material be prescribed to correct these errors. The Denver course of study (125), the Wisconsin report (152), S. A. Leonard (138), and Pooley (144) all contributed materials for the language curriculum in the secondary schools. Kennedy (134) offered definite suggestions for a study of the English language at the college level.

F. The Social Studies

The years 1931-33 have been significant ones for those concerned with the social studies curriculum. The social and civic deficiencies revealed by the period of widespread depression have challenged all teachers, and especially teachers of the social sciences, as never before. Penetrating analyses of our disordered civilization have not been lacking. No teacher of citizenship can remain complacent when confronted with such thought-provoking publications as: the report of the President's Research Committee on Recent Social Trends (206), the 1933 Yearbook of the National Society of College Teachers of Education (200), Rugg's *The Great Technology* (215), Frank's *Thunder and Dawn* (173), Kilpatrick's *Education and the Social Crisis* (185), and *A Call to the Teachers of the Nation* issued by a committee of the Progressive Education Association (210). At the same time, many investigators have patiently pushed forward the frontier of exact knowledge, helping bit by bit to prepare the ground for the construction of a more adequate civic education in the school. Among the outstanding contributions of the period are the reports of the Commission on the Social Studies of the American Historical Association (156, 182, 204), three yearbooks of the National Council for the Social Studies (196, 197, 198), and the Thirty-second Yearbook of the National Society for the Study of Education (199).

Turning to more specific research studies, a gratifying number of carefully conducted investigations have yielded an impressive list of fairly well-substantiated conclusions.

Social background of the curriculum—Pierce (204) studied the educational aims and programs of 200 organizations which since the World War have sought to influence the civic education of young Americans. Her impartial presentation of the purposes and methods of the more influential of the patriotic, military, peace, religious, business, political, and fraternal groups in their efforts to mold school instruction constitutes a major contribution to the field. Biddle (158) critically analyzed the psychology of propaganda, and constructed experimental lessons, which through controlled use, proved effective in "teaching resistance to organized autistic thinking," and in "reducing emotional gullibility." Penningroth (202) sought to discover the "generators of public opinion" and the range of attitudes on international relations in two communities. His study included appraisal of the attitudes of high-school pupils and teachers. Shilling (220) and Belleau (157) set forth legal requirements for the teaching of civics, the Constitution, and patriotism.

Course offerings in the elementary school—Lindahl's study (191) of 57 courses of study in intermediate grade history revealed correlation with geography more prevalent than fusion, lack of uniformity in selection and grade placement of subjectmatter, and a tendency to encourage wide reading by pupils and teachers. Thralls (228) analyzed 40 state and 55 city courses of study in geography. She found that the modified one-cycle type

of organization is becoming dominant in the states and especially so in the cities. Considerable agreement appeared in the initial introduction into given grades of type studies, North America, Europe, and Asia. A heavy load of material is assigned to grade six.

Course offerings in the junior high school—After surveying 30 courses in 13 states, Wilson and Erb (236) arrived at three conclusions: that little agreement exists as to what should be taught, although geography still predominates in grade seven, American history in grade eight, and the "new civics" in grade nine; that there is a widespread willingness to experiment and a desire to improve civic education; and that interest in fusion courses is greater than ever before. Similar conclusions were reached by Henderson (179), from a study of 26 courses of study. Kimmel's study (186) revealed more unified courses in grade seven than in grades eight and nine. He found in some cities differentiated courses for pupils preparing for college and those who were not. His data largely substantiate the conclusions of Wilson and Erb. He (186:20-41) also presented more detailed analyses of fusion courses and of courses in geography, European background, American history, and civics. Russell (216) presented a tabular analysis of the topics included in each semester of grades seven and eight as prescribed in 42 city courses of study in geography.

Course offerings in the senior high school—Kimmel's analysis (186: 16-19) of high-school offerings in 43 cities revealed the following emphases: world history in grade ten; modern European and American history competing for predominance in grade eleven; and in grade twelve American history, economics, sociology, advanced civics, and problems of democracy. Detailed analysis of the content of the various courses was presented. Subsequent chapters gave principles for the selection and organization of content, and suggestions derived from the analysis of courses of study for adaptation of materials to individual needs. Van Dyke (231) studied the course offerings of 35 high schools from 1906 to 1930. Thirty-eight different social studies courses were offered in 1930 compared with 8 in 1906. During the twenty-four-year period, medieval history and English history suffered a marked decline, while economics, modern history, and sociology greatly increased in popularity. Carrothers (165) presented analyses of course offerings, department enrolments, and curriculum changes desired by principals, in a large number of North Central Association high schools. Twelve rather definite courses were found in the social studies group. The trend of course changes reported is similar to that found by Van Dyke. The course offerings and requirements in four-year high schools and those reorganized as junior and senior high schools were compared by Marks (194). Such tendencies as the following are reported: the most frequent offering in grade nine is social studies in reorganized schools, and ancient history in un-reorganized schools; reorganized schools tend to shift American history to grade eleven, reserving grade twelve for economics, civics, sociology, and problems of

democracy. Symonds (225) found geography as a senior high-school subject in 70 percent of the schools studied, with from 8 percent to 25 percent of the pupils taking geography. After analyzing college entrance requirements, Cochran (168) stated that the majority of liberal arts colleges accept geography for admission credit. Shields (219) summarized the status of economics in 33 high schools, including data as to distribution of time on different topics and most frequently used textbooks.

Course offerings in the junior college—Three investigations present the status of social studies in junior colleges. After surveying the courses in 50 typical institutions, Scherf (217) stated that 28 of them "offer a wide enough range of social studies, intelligently organized, to give the student a broad survey of his world, and 22 do not." Moore (195) presented tables revealing the courses offered, textbooks used, and class procedures employed in 48 junior colleges accredited by the North Central Association. Carpenter's study (164) included evidence from the catalogs of 118 public and 156 private junior colleges.

Objectives and content of courses—Kimmel (186) reported the objectives most frequently listed in 60 social studies courses, as revealed by unpublished data of R. E. Swindler. The form of presenting objectives is also shown. The most frequently mentioned objective is socio-civic efficiency. Hunter (181) subjected the concept and certain practices of patriotism to critical analysis. He found patriotism to consist of loyalties to specific ends and aspects of country rather than to the general totality of the state. Emotionalized emphasis of certain ends combined with symbols of patriotism is "often used as a means of social control in the interests of restricted groups." The objectives presented in geography courses of study since 1900 were studied by Johnson (183) to discover trends and present tendencies. Recent courses stress the interdependence of men, and sympathetic understanding of other peoples. O'Brien and Watkins (201) collected from 300 Kansas high-school teachers the objectives which they held important in teaching history. "To develop culture and proper use of leisure" was most frequently mentioned. McHugh (193) secured the judgments of 20 teachers as to the relative importance of 38 specific learning units in geography and arithmetic. Robbins (213) found a rather large amount of geographic material in analyzing 550 articles in 42 magazines, and reached the conclusion that a knowledge of geography should increase interest in, and understanding of, periodical literature. Stull (222) reported a study of the geographic content of 25 social studies courses. He found great disagreement as to content. In the junior high school he noted more stress on history and civics than on geography, and in the senior high school almost exclusive attention to history and civics. A "library job analysis" of 12 courses of study was made by Brooks (161) to discover the library skills and materials needed in high-school social studies.

Vocabulary of social studies—The Presseys are responsible for 3 objec-

tive studies of curriculum content. Pressey and Fischer (209) analyzed the places mentioned in 8 history textbooks to determine the items of place geography most important in understanding history. They recommended that pupils be encouraged to master the 139 location facts reported. In another investigation, Pressey (208) studied 6 geography textbooks to discover the essential technical vocabulary of the subject. A final list of 228 words was presented. Employing a more elaborate method involving both objective and subjective criteria, Pressey and Pressey (207) formulated a minimal vocabulary of 384 words or concepts in American history. They urged that teachers and textbook writers give more attention to the mastery of fundamental technical vocabulary. Utilizing an equally elaborate technic, Kelty (184) developed a basic vocabulary of 711 words in American history for the middle grades. Her report included data concerning the appearance of each word in several previously reported lists.

Textbooks—Pierce (205) analyzed nearly 400 textbooks in common use in American schools to ascertain what attitudes toward peoples, policies, and customs of other lands, and toward important phases of civic life in America might be developed in pupils using these books. She found that the young American is taught great respect for his forebears and the institutions which they founded. In contrast, the textbooks frequently present unfavorable attitudes toward the peoples of other nations. Readers and histories are most guilty in this respect, and geographies least offensive. Many books exalt war over peace. Carter (166), after computing the percentage of space devoted to the British, Germans, Irish and Scotch-Irish, Italians, and Poles in 10 senior high-school history textbooks, concluded that the non-English groups do not receive attention commensurate with their historic importance in America. She found a considerable tendency to inculcate unfavorable and antagonistic attitudes toward these nationalities, excepting the Scotch-Irish, especially in the treatment of earlier periods of American history. Harbourt (177) carefully analyzed 16 American, 8 English, 13 German, and 4 French histories most commonly used in secondary schools, to discover significant variations in their treatment of the World War. Marked differences of national emphasis are revealed through extensive quotation and through tables presenting the number of textbooks recognizing or omitting important facts. The analysis included: the causes and beginning of the War, invasion of Belgium, America in the War, the peace conference and treaty, and the League of Nations. That pupils of different countries will have very dissimilar conceptions of every aspect of the War is apparent.

In studying the men mentioned in 5 junior high-school American history textbooks, Rosenbloum (214) found that only 136 were common to all five books out of a total of 857 different men mentioned. In order of frequency of mention the groups were: statesmen, artists and musicians, military and naval men, colonizers, scientists and inventors, explorers, educators, and religious workers. Clucas (167) studied the specific dates

mentioned in 5 high-school American histories and 5 European histories. The "date load" was found to run from 685 to 1356 mentions, of from 182 to 253 different dates, of which 30 percent were mentioned only once. He suggested that such heavy factual loads break down efficiency in learning, and presented a list of 26 most important dates. Brown (162) made a comparative study of the vocabularies of 10 sixth-grade textbooks in history and reading. The histories proved more difficult than the readers, so difficult, in fact, as to suggest the advisability of rewriting in simpler language. After analyzing 7 widely used textbooks in geography, Swartz (223) concluded that pupils are needlessly confused by widespread variation in the use of colors and symbols on maps, not only between different texts but even within one book.

Brigham and Dodge (160) presented a popular account of the geography textbooks of the nineteenth century, based upon extensive historical research, showing the evolution from the early encyclopedic, logical grammars of physical geography to the much more human and pedagogical geographies of 1900. A somewhat similar service has been rendered the teaching of history by Johnson (182), who attempted to show that all is not new that glitters. His popular, and sometimes sarcastic, account summarizes a lifetime of study and research in the teaching of history. Blythe (159) studied 53 high-school American history textbooks, published from 1897 to 1930, to discover how fully these textbooks incorporate significant new discoveries, emphases, and viewpoints published between 1893 and 1928. Her data indicated an unfortunate neglect on the part of textbook writers in incorporating new viewpoints into their books.

Roach (212) determined the amount of correlation of 7 junior high-school history texts with other subjects. The median percentage devoted to each subject is given as follows: economics, 18 percent; government and civics, 15 percent; geography, 12.6 percent; science and invention, 2.8 percent; literature, 2 percent. Floyd (172) found considerable overlapping in the most widely used high-school texts in American history and in problems of democracy. He suggested reorganization of the two courses, and a reversal of the present tendency to make a study of the past serve as introduction to present problems. As a result of two controlled experiments, Tormey (229) urged that writers of history textbooks be more critical of the inclusion of specific geographic terms.

Cramer (169) experimented with the Rugg social science books in grades seven and eight. He found that one book and corresponding workbook could be adequately covered each semester with a daily time allotment of ninety minutes. He also discovered that this series offered less reading difficulty than the state textbooks which they replaced. A questionnaire study by Goodrich (175) revealed a consensus of opinion that the workbook in school subjects, including social studies, has sound educational values when well selected and intelligently used. After studying 10 recent series of readers, Lacey (189) concluded that "the majority of stories

deal with child life, nature interests, and animal stories, which are the very best of social studies material." In the first three books, however, "it is very simple and extremely thin." Gunderson (176) also analyzed 10 series of primary readers, finding a relatively small proportion of geographic material and practically no duplication in the 40 readers. Peoples, industries, and transportation were the most common geographic themes.

Two studies have been made of the social studies books available in high-school libraries. After an extensive investigation of some 350 school libraries in several states, Swindler (224) reached the conclusions that only a few libraries have an adequate number of social science books, that many of the books available are not suited to the pupils' needs, and that the textbook method still prevails in most schools. He also formulated criteria for the selection of library materials, and presented lists of recommended books for junior high schools and senior high schools of varying sizes. Wesley and Murra (234) presented a list of reference books most frequently found in the libraries of 58 Minnesota high schools. They found the libraries slow in acquiring new books, for the shelves were filled with books published before the World War. They, too, found teachers making insufficient use of the library facilities which were available.

Testing the curriculum—The results of a critical analysis of 23 standardized tests in American history were presented by Peters and Altman (203). The 3500 references in the test items were classified as follows: political, 67 percent; social and economic, 22 percent; military, 10 percent. Several comparisons were made with objective studies of curriculum content. An interesting attempt to differentiate between knowledge of facts and understanding of ideas as outcomes of a history course was undertaken by Krey and Wesley (187). Pupils who had not taken the course in modern history but who studied intensively for a short time succeeded much better relatively on a test of information than on one of understanding. Golub and Swahn (174) measured the attitudes of 206 pupils before and after a course in American history. They found the pupils opinionated about most of the problems considered, and when changes of attitude occurred, it was difficult to ascribe them to the effects of the course. By presenting detailed results of responses on an extensive test administered to 6500 pupils in world history classes in 245 high schools, Anderson and Lindquist (155) revealed a cross-section of the knowledge of a large group of students. They suggested many means of improving the effectiveness of such tests. Kimmel (186:94-95) listed the types of aids in testing which are included in junior and senior high-school courses of study.

Method and curriculum—Difficulties in the teaching of history that arise both from method and curriculum were reported by Van Bibber (230). Three sources of difficulties were utilized: 313 professional and non-professional magazine articles were studied; questionnaire replies from 1500

teachers were tabulated; and addresses at a national convention were analyzed. Difficulties reported concern not only general deficiencies in the organization and administration of the course of study, but also the specific topics and units in the various fields of history. A similar study was more briefly reported by Wirth (237) who listed 71 common difficulties, many of which have implications for curriculum as well as method. Two experimental studies comparing the relative values of extensive and intensive reading in seventh-grade American history were reported by Weaver (232, 233). The results were not in either case conclusive, but the author stated "that a great deal may be said in favor of extensive reading." Crawford and Walker (170) carried out a controlled experiment in the junior high school comparing the teaching of history backward with the more usual "forward" method. "The results are sufficiently in favor of the backward approach to warrant a careful consideration of this method." An experiment, without control groups, in the systematic use of pictures in sixth-grade geography was reported by Dexheimer (171).

Children's interests, attitudes, and abilities—Shaffer (218) made a detailed study of the ability of pupils in grades four through twelve to interpret cartoons. "Several implications" suggest "that cartoons are desirable curriculum material . . . in the junior high school." He made recommendations concerning the use of cartoons and the detection of causes of misinterpretation. Thomas (226) tested the ability of pupils in grades four through seven to interpret graphs. She found that superior fourth graders and pupils above that grade could read simple types of graphs. Line graphs proved most difficult. Thorp (227) studied the ability of pupils in grades four through eight to use such geographic tools as are involved in map reading, globe study, and interpretation of picture graphs. She stressed the need for more careful analysis and grade placement of these skills. A more detailed study of the ability of elementary-school pupils in map reading was reported by Howe (180). He, too, recommended further study and more attention to the development of such skills.

Reed and Wright (211:60-62, 148-216) presented outlines of the interests of primary children in the community, communication, transportation, industries, and peoples of other lands and races, based upon extensive inventories of children's interests. A careful study of the social studies concepts of primary-grade children was made by Lacey (188). The evidence secured revealed a need for more careful teaching and testing of social concepts. The children studied possessed "considerable information about their social world, but much of it is entangled with misconceptions."

The attitudes of children in grades six through ten toward war were explored by Limbert (190), whose outstanding conviction resulting from the study is "that our teaching about war and peace needs to be more realistic."

Difficulties and errors—Three studies of difficulties and errors were reported in the yearbook on geography of the National Society for the

Study of Education (199). Wilson (235) prepared a checklist of difficulties in using geography texts which was submitted to a number of teachers and supervisors. She concluded that many texts fail to emphasize geographic relations, fail to help pupils realize geographic objectives, and fail to stimulate pupils to active cooperation. Hart (178) collected and classified common errors in geography made by teachers and pupils. She found a close relationship between the errors of pupils and those of teachers. Aitchison (154) studied the errors and misconceptions of children regarding the geographic zones. McCallister (192) presented the results of a two-year investigation of the difficulties of pupils in grades seven and eight in studying American history. His findings "demonstrate the need for giving special attention to reading activities in connection with . . . each content subject."

Miscellaneous—Four miscellaneous publications deserve mention. Zink (238) listed and classified 82 studies in geography, reported in the past thirty years. Adams (153) described citywide participation of teachers in the experimental development of a social studies course of study for the intermediate grades. Sisson (221) pointed out some of the hazards and limitations of attempting to determine the social science curriculum by strictly objective and statistical methods. Carey, Hanna, and Meriam (163) presented a catalog of units, mostly of social studies content, which have been used and reported by teachers in elementary schools.

G. Modern Foreign Languages

Vocabulary studies—The field of vocabulary has been more fruitful than any other in modern foreign language investigations during the last triennium.

Engle (252) reported that about 1450 German words are learned by his college students during the first semester, and provided a list of about 600 basic words, chosen partly on the basis of various lists and partly on subjective grounds. Purin's German list (275) was based on the labors of Morgan-Kaeding, Wadepuhl, Hauch, and on personal judgment. Schinnerer and Wendt (279) presented a list of 1000 German words for "active" use, basing their conclusions on a study of existing lists.

Altrocchi (239) continued to list the cognates which may lead astray English speaking students of Italian. Zinno (291) listed in groups for learners more than 2000 Italian words chosen subjectively. Knease (267) compiled an *Italian Word List* from 40 recent literary sources. The list, including only those words found in at least 9 texts, numbers about 2100 items. Morgan and Oberdeck (272) concluded that "passive" vocabulary is greater from the first than "active" and develops more rapidly until the indeterminate stage when the latter receives more specific attention. West (289) endeavored to provide a basis for choosing the first 1000 items of a speech vocabulary, in this case, in English.

Blackburn (244) and Sears (280) each examined 2 recent French

grammars and showed the large size in each case of the vocabulary (2051 to 3009 different words), their lack of agreement with one another, and the small amount of repetition. Buck (246) studied the etymological relation to English of the entries in Part I, and of the first 2400 in Part II of Vander Beke's *French Word Book* (285), finding that about 1325 of these have English derivatives. Cole (248) ascertained the number of words in 5 ungraded French texts and found that the percentage in each supplied by the first 2000 words in the *French Word Book* was respectively 63, 54, 52, 45, 47, in sharp contrast to 2 graded texts of the same type in which 87 and 89 percent respectively, of the vocabulary is supplied by this group of words. Emery (251) and Haygood (259), on a sampling basis, studied the vocabulary of 10 and of 5 literary French works respectively—2 plays and 13 novels—with the *French Word Book* as the point of reference. They discovered that from 50 to 69 percent of the running words are supplied by the small high-frequency group in Part I; that the first group of 1000 words in Part II provides from 24 to 32 percent of the remaining running words; that the second group of 1000 words provides from 4 to 7 percent; and that the remaining groups of 1000 supply from 4 to 6 percent each. They concluded that the items in Part I, with the first 2000 in Part II, may be safely taken as a basic reading vocabulary; and that the *French Word Book* is valid for the purposes for which it was prepared.

Baker (243) worked out a tentative vocabulary for first-year French students based on Thorndike's *Teacher's Word Book* (284) and Henmon's *French Word Book* (260).

Limper (270) investigated the extent to which high-school pupils and college freshmen who have not studied French, are familiar with about 1500 items in the *French Word Book* (285) that resemble English words in form and meaning. The percentages on test scores were low. He concluded that it is risky to assume that pupils will recognize French words because of their kinship with English.

Stover (282) compared the vocabulary of a first-year French course with that of the corresponding second year, and both with the *French Word Book* (285). Among her conclusions were these:

1. Low correlation between vocabulary of grammar and of readers.
2. Most words in both grammar and readers have a frequency of less than five in the texts.
3. More than one-third of the words occur only once.
4. The second-year vocabulary is almost three times that of the first year.
5. Texts are needed which provide for repetition of a basic vocabulary.

Fotos (255) tabulated the vocabularies of 9 beginners' texts, getting about 4000 items. From this list he derived one of 800 items for beginners. Ryan (277) tabulated the vocabulary in 11 novels. They contain from 7 to 14 percent of unusual words as measured by the *French Word Book* (285). Miller (271) tabulated the vocabulary for 10 French books. Of

the first 500 words in the *French Word Book* (285), Part II, 440 were common to 8 of the 10 books. Both Ryan and Miller concluded that the texts studied may be read in second year if the first 2000 words of the *French Word Book,* Part II, are familiar, and that the *French Word Book* is a valid criterion in measuring the difficulty of a reading text.

Garcia (256) asserted that the maximum vocabulary of second-year Spanish students is about 1250 words, and that not more than 200 can be added each subsequent year. Arnold's study (240) of the vocabularies of 6 Spanish authors showed that their use of idiomatic expressions transcends the high-frequency idioms entered in Keniston's list (266). Calbick (247) and Wade and Banner (287) made studies in Spanish words similar to the French vocabulary studies undertaken by Emery and Haygood, already cited. Hills (264) subjected the assumed high-frequency group of the *Graded Spanish Word Book* (190 in number) to a test by tabulating their occurrences in 21 recent plays. He found that 4 of them occurred too rarely to be included in such a group. Post (274) made a comparison of existing Spanish word lists prepared for students' use in first and second years of high school, using the Wilkin's List (290) as the norm.

Studies in syntax—Arnold (242) found that 5 Spanish plays and 5 novels contained forms of the verb in order of frequency (to list only those found 100 or more times), present indicative, infinitive, preterite indicative, imperfect indicative, present subjunctive, gerund, perfect indicative, future indicative, and imperative. The dramas showed twice as many cases of the present indicative, present subjunctive, perfect indicative, future indicative; about one-fifth as many of the preterite and imperfect indicative; about one-half as many of the imperfect subjunctive. He (241) also compared the relative frequency of verb forms in fiction and in drama in French, Italian, Spanish (30 units in all) of about 2200 running words each. The present subjunctive is far more frequent in Italian and Spanish than in French, and much more frequent in plays than in fiction. The imperfect subjunctive is found much less often in French than in Italian and Spanish.

Hills and Anderson (261, 262) studied the frequency of moods and tenses in recent Spanish plays, and (263) the relative frequency of Spanish personal pronouns. They found only 23 irregular verbs, but their forms made up over half of all verb forms. They concluded that 17 of the 23 are the only irregular verbs to be studied in the elementary stage. *Estar* occurs one-fourth as often as *ser*. The third study yields a list of pronouns in order of frequency. *Os, los, las, les,* have a low frequency in plays.

Jackson (265) studied the occurrence of past tense forms in 13 recent French plays. The second past perfect (past anterior) hardly appeared at all, the past absolute rarely; the total of indicative forms was 7995; of past subjunctive, 124, about one-fourth of these being imperfects.

Lake (269), Flanagan (254), and Sudran (283) tabulated all cases of verb usage in 3, 2, and 4 reading texts each, all three using the same checklist with some modifications. The three studies bring out the high frequency of the imperfect form to express state or condition in the past. One of the novels in Sudran's study had the present all the way through as the basic narrative tense, and one in Flanagan's had about 1500 cases of the same construction. These syntax studies bring nothing conclusive, but they make it clear that we know little of the relative importance for teaching purposes of the uses of various forms of the verb. Spaulding (281) reported, from a study of 33 Spanish texts, a large preponderance in the use of the infinitive after such verbs as *mandar, dejar,* whether the main verb has a pronoun or a noun object. Few cases of *aconsejar* were found, but all with the subjunctive.

Error studies—Crider (250) found that in translating from Spanish into English, 65 percent of the errors were in vocabulary and the rest grammatical, e. g., wrong tenses. Hathaway's error study (258) in German yielded a total of 56,267 errors in student versions of English-German exercises amounting to about 51,738 running words, with 7151 errors in *der* and *ein* words alone, and 6790 in verb position.

Breckheimer (245) analyzed the errors in 1000 free compositions and in 500 translations into French made by high-school students in the four years of a course. The same errors persisted throughout; the number decreased from 1 per 5 words in the first year of free composition to 1 per 13 words in the fourth year; in translation, the number decreased from 1 per 6 words in the second year, to 1 per 8 in the fourth year. In order of frequency the errors were: spelling, agreement, vocabulary, verb forms, prepositions, gender, article, and pronoun. The second, third, fourth, sixth, and seventh of these errors accounted for more than half of the total; nearly all spelling errors were due to accents; the subjunctive was rarely used correctly.

Rogal's study (276) was based on a test constructed *ad hoc* to check grammar only. In order of frequency the errors were: partitive after a negative and before an adjective; possessive adjective before a vowel sound; use of *eux;* auxiliary *être.* The proportion of errors made by students in the 9 schools taking part illustrates the wide difference in attainment from school to school. These error studies raise the question whether the prevalent curriculum should be changed, or whether most students should not be denied registration in modern language classes. This query is suggested again by Sandal's study (278). Test papers in French II revealed that failures on the grammar section ranged from none to 32 percent for the normal group, and from 65 percent to 96 percent for the low group, whereas the comprehension section caused no failures in any group.

Syllabi—Four recent course outlines are the products of considerable investigation (249, 253, 273, 288) and represent the East and the Central

West. The first (249) outlines the subjectmatter in French, Italian, German, and Spanish by terms and by years, and provides lists of words and idioms in each langauge. The second (253) states the chief aim of the course thus: "to develop to the point of enjoyment the ability to read the modern language." However, the amount of reading suggested is conventional. The former represents the curriculum in modern languages that developed in the United States from about 1915 to 1925, as the result of adapting the doctrines and practices of the reform in Europe to our conditions. The latter is a direct outgrowth in principle of the *Modern Language Study*. The North Central Association document (288) is so enmeshed in a framework constructed by professional educators that its main lines are obscured, but suggests in general the type of curriculum outlined in the *Modern Language Study*. The same is true of the report of the Secondary Education Board (253), although the fact that the committee preparing it had in mind a six-year college-preparatory course differentiates this document sharply from the others.

Gilman (257) and Kurz and Kurz (268) measured with considerable objectivity the amount and kind of "cultural" material in the French books usually read in high school and in college. The Van Hornes (286) did the same for Spanish. The three investigations agreed that such material is generally casual in kind and in amount and is indirectly presented. They concluded that editors and teachers must select the significant items, make them explicit, and supply what is necessary to give them coherence.

H. Health and Physical Education

Health education—A clear understanding of the importance and relative value of the many practical procedures included in the educational health program depends upon an intelligent appreciation of the biological background. Caldwell, Skinner, and Tietz (295) treated biology so as to include man as a thinking animal with his behavior and culture. This has significant implications for the principles influencing the health program, as well as the more general philosophy of education. Fundamental to this health program will be found, then, the broad educational basis properly integrated with the health needs of the child, and the authoritative, scientific principles and practices capable of meeting these needs in health services to, and the health education of, the child, all of these phases having always direct or indirect bearing upon the curriculum. The basic emphasis upon health as the primary objective in education, recognized standards, and the coincidental controversial issues characterizing health science as the most inexact of all the applied sciences, were treated on the basis of statistical findings by Phelan (318).

The increasing interest in the comprehensive school health program was considered from various angles of function and responsibility by Brammell (293). Hughes (305), Jones (307), Ready (319), Rogers (321),

Rugen (322), and Spencer (324) also offered interesting material relative to comprehensive school health programs.

Brammell (293) pointed out as a result of a survey covering 460 secondary schools that: (a) there is an encouraging tendency to coordinate health work for entire school systems and to employ health directors to supervise it; (b) a large share of the responsibility for health instruction is placed on special teachers and physical education directors rather than on physicians, nurses, and doctors, whose services are employed only at certain periodic intervals; (c) a little more than half of the schools had definite outlines of study for health instruction, in most cases laid out by the city school system or by the state department of education; (d) 13 percent of the schools employed special health teachers; and (e) increasing interest is being shown in the physical activities of pupils out of school hours. The objectives of making healthful recreation habitual to children, of developing desirable traits of character, and of learning games which can be played during adult life, have led the schools in increasing numbers to supply playground supervisors. According to Brammell, the future will show a further tendency to coordinate health work and physical education with general athletics, both intramural and interscholastic, as well as a greater insistence on the inculcating of advantageous health habits by participating in healthful activities. This will necessarily lead to a serious reexamination and reevaluation of extra-curriculum activities.

Developments in the health field are so rapid, and programs so varied and constantly changing that frequent fact-finding studies are important for those who wish to keep abreast of the evolution of the work. Brammell (293) and Rogers (321) furnished extensive statistical data regarding many features of the comprehensive program. Brammell also presented a brief tabulation of helps and hindrances to the complete health program and its success. Of the secondary schools surveyed by Brammell, 163 reported local conditions a help to the health program and 113 a hindrance. Conditions which were helpful included a cooperative community, good home conditions, and cooperative parents. The chief hindrances reported were lack of school facilities, lack of cooperation from parents, ignorance and superstition of parents, and lack of funds.

The personnel engaged or needed in various phases of the program were considered by Brammell (293), Franzen (301), and Rogers (321). According to Brammell, an increasingly high type of teacher in health education and physical education is being demanded. His survey showed that health instructors are well prepared and leaders in physical education are being increasingly selected on the basis of special preparation, rather than on the record of their past physical performance in college or elsewhere.

The development of means for measuring the status and value of procedures and accomplishments is recognized as essential in this as well as other phases of the educational program. Tests and measurements in the

health program were discussed by Brammell (293) and Franzen (303). Franzen (302) also considered the influence of social and economic factors on the health of school children. He listed economic opportunity, the inclination to pay for health protection, capacity to make use of available knowledge regarding hygiene, and cultural status as the dominant forces in determining the response of children to a school health program. Methods and technics for school health surveys were considered by Franzen (301), Hughes (305), Ready (319), Rugen (322), Spencer (324), Davis (298), and Cozens (297). Davis (298) discussed in detail forty-nine different methods and technics used with more or less success in surveying health and physical education in city schools. He admits freely that none of these methods or technics can be regarded as final or conclusive as to procedure, though all are helpful. Cozens (297) listed a still larger number of features of the health program which demand further study and standardization.

Increasing emphasis is placed upon the effective cooperation of home, school, and community agencies as indispensable to the success of efforts in health work for school children. Administrative questions were considered by Rogers (321), Rugen (322), and Spencer (324). Specific needs for improvement in some features of the health program were pointed out by Ready (319). She urged, for example, that attention be given to developing health programs to meet the changing needs of children of various age groups, such as elementary, junior, and senior high-school pupils.

Health service—The health services for children carried on by schools at present possess or gain educational value not only by improving the health of pupils to be taught, and thus increasing the efficiency of the learning process, but also by presenting many opportunities for important contributions to specific educational processes. Such situations, if dealt with in ways educationally sound, may provide some of the vitally important items or units in health education. The health service program has then a definite bearing upon and relationship to the curriculum. Different phases of health service were discussed with respect to health examinations by Franzen (301), Myers (312), Ready (319), Rogers (321), and Spencer (324); and with respect to communicable disease control by Rogers (321). Follow up and corrective treatment were discussed by Brammell (293) and Franzen (302, 303). Brammell (293) in his survey already cited found that although health examination of school children is practically universal, only one-half of the schools examined by him offered corrective work for remediable defects discovered by medical and dental examinations. However, 90 percent did inform parents of such defects.

According to Franzen (302), where there are no inherent intellectual difficulties to overcome, we may reasonably expect as good results in one class of society as another and that children in any community are bene-

fited by home care in correlation with school health measures. He applied his studies chiefly to such remedial work as that connected with defective hearing or sight and dental defects. In another monograph Franzen (303) presented an exhaustive study of the public health aspects of dental decay.

School clinics and nutrition classes were treated by Rogers (321); provisions for safety in traffic by Lewerenz (308); safety in organized camps by Sanders (323); safety procedures in secondary schools by Lloyd (339); hygiene of environment by the New York Commission on Ventilation (313); and special classes for physically handicapped children by Brammell (293).

Health objectives—Health education deals with the total comprehensive range of experiences in the school and away from the school, which exert favorable influence upon habits, attitudes, and knowledge of the child relating to the health of the individual, the community, and the race. This inclusive program provides for complete correlation of health education with health services, for the contribution of all subjects to health education considered as a way of living, for the influence and example of all those who come into influential contact with the growing child, and for the cooperation of school, home, and other community agencies in relation to this broad, complex problem.

This program includes many factors. Value of training in health is considered by Gillett and Rice (304), who made an interesting study of the relation between food habits and health education. Characteristics of pupils were treated by Paterson (316) and individual differences by Franzen (301). Maller (310) raised questions (a) as to what extent the educational status of a school correlates with the social-economic status of its neighborhood, and (b) whether it is possible to predict rate of progress in a given school from knowledge of its location. Maller claimed that one cannot reasonably expect a school operating in a relatively "poor" locality to live up to any arbitrary norm, any more than one can demand all pupils to be of equal height.

Hussey (306) dealt with criteria for selection of materials for health instruction. Rugen (322) and Oberteuffer (314) studied children's interests as guides to selection of materials. Oberteuffer presented a series of questions raised by students which he offered as a guide to their interests and curiosities on which a suitable hygiene syllabus can be based. Among the subjects and sources contributing to health instruction the following were studied: general science by Whitman (327); biology by Spooner (325); and safety material by Lewerenz (308) and Sanders (323).

Health education faces a very serious task in dealing with health errors, superstitions, misconceptions, and unfounded beliefs. Various aspects of this vexing problem were studied by Caldwell and Lundeen (296, 309), Maller and Lundeen (311), and Rhoton (320).

As in other fields, educational methods are properly receiving careful attention. Various phases of this problem were treated by Hussey (306),

Caldwell and Lundeen (296), Franzen (301), Dunshee (299), Osborn (315), Pettit (317), Ready (319), Sullivan (326), and Eastwood (300). For example, Eastwood raised the question as to what materials and methods in health education best meet the changing social needs of the child. He offered many suggestions for stimulating interest in health practices and for coordinating the life of home and school. No chasm between knowledge and conduct is wider and more inadequately bridged than that in health education. An illustrative study which throws light upon the relationship of various factors and influences to healthful behavior was reported by Gillett and Rice (304). Influences of homes and community agencies upon the health education work of the schools were considered by Brammell (293), Franzen (302), Maller and Lundeen (311), and Phelan (318).

Supplementing all other factors needed in a cooperative program of health education, the part of the classroom teacher gains increasing prominence with improved study and understanding of the entire problem. Consideration of various phases of the teacher's qualifications and functions will be found in Barker (292), Franzen (301), Ready (319), Rhoton (320), Spencer (324), and Jameson (336). The latter, for example, urged that since elementary-school teachers are the ones who must do most if not all of the teaching of physical education in the grades, teachers colleges and normal schools should give more attention to this subject.

Specific forms of further research needed in health education were pointed out by Barker (292), Phelan (318), Rugen (322), and Spencer (324).

Physical education—Physical education is here considered as fundamentally independent of the health program in general aims, objectives, and subject or department content. Physical education, like other curriculum subjects and departmental programs, has valuable contributions to make to the complete integrated health program. Because of traditional and other influences, physical education in some or many schools and colleges is found associated with one or more phases of the health work.

The status of the physical education program was presented by Ready (319), Rogers (321), and Neilson (341). The latter presented a standard physical education program for elementary schools.

Objectives in athletics and other activities in this field were treated by Coops (332), Brammell (294), and LaPorte (337). Types of activities were discussed by Coops (332), with reference to those most enjoyed; and by Blanchard (330).

Standards and criteria for the selection and organization of activities for different situations found consideration by Coops (332), Crapser (333), Neilson (341), and the Committee of the North Central Association (340). The problem of great current interest concerning activities which carry over to leisure time was constructively discussed by Coops (332) and Rugen (322).

The fundamental and general educational principles applied to teach-

ing methods in each technical field are receiving more careful study and application in physical education. Such studies are found in Jameson (336), Lee (338), and in Affleck (328). The latter studied neuro-muscular control, showing the value of what he calls neuro-muscular education. He drew attention to the importance of learning how to relax when opportunity offers which, he says, is "one of the secrets of conservation of energy, even of endurance."

The teaching personnel in the field of physical education was discussed by Rogers (321), Neilson (341), Lloyd (339), and Jameson (336).

Tests and measurements for the values and effects of different types of activities were reported by Cureton (334), Howe (335), LaPorte (337), Wayman (342), and Clevett (331). Cureton (334), for example, treated the subject in application to swimming and the various strokes. Clevett (331) conducted a three months' experiment to test the effectiveness of physical activities of various sorts in the teaching of skills, and in resultant moral and social values, particularly honesty. His conclusions were: (a) skills in gymnastics, athletics, and aquatics can be increased in measureable amounts during a three months' training period, and that definitely-planned teaching is much more effective in developing such skills than mere practice without instruction; and (b) the form of behavior called honesty can not only be influenced by such a three months' period of physical education program, but can definitely be better inculcated where purposeful attempts are made to develop honest behavior than if such behavior is left as a mere by-product. Alden and Top (329) reported a failure to establish any positive correlation between measurements of posture, weight, vital capacity, and intelligence.

To cite another example, LaPorte (337) offered a series of informative charts showing comparative values of various sports and other athletic activities in a physical education program for boys.

Statistics of expenditures for physical education were given by Rogers (321). The organization and administration of programs in this field involve a wide range of policies and procedures with variations due in a large part to problems of adjustment to local and institutional situations and needs, and with the interpretation of these by the established general administrative authorities. Various other aspects of administration were studied by Brammell (294), Davis (298), Hughes (305), Jones (307), Ready (319), Rugen (322), Coops (332), and Jameson (336).

I. Science

Curriculum trends—Several studies of trends toward the establishment of a sequence of courses in science confirm the results of earlier investigations. Hunter (351) reported on the curriculum trends in a selected list of schools which he had studied in 1908 and again in 1923; Monahan (354) surveyed the enrolments in science from the figures of the Bureau of Education of 1915, 1922, and 1928; and Curtis (347) studied the

teaching of science in 1802 secondary schools of the North Central Association. These three studies reveal that the science sequence consists of general science in the ninth grade, biology in the tenth, and physics and chemistry in the eleventh and twelfth grades; and that general science is offered widely in the seventh and eighth grades. Hunter found that biology is offered in 28 percent of the schools sampled in the ninth grade, and in 67.6 percent in the tenth grade; Curtis found two years of biology offered in 2.2 percent of North Central schools. All three of these investigations showed that physiography has been practically replaced by general science and that separate offerings of botany and zoology have practically given way to the integrated course in general biology.

Overlapping of subjectmatter—Two studies of the overlapping of subjectmatter deserve attention. Rodean (357) analyzed 5 textbooks of general science and 4 of biology. His most important conclusion was that approximately 12 percent of all material in the average biology text receives identical treatment in the average book in general science; and that 1 percent of the material receives a more complete treatment in general science. It should be pointed out, however, that this conclusion is not necessarily an indictment of either the biology or the general science texts, because the books are written to serve in many situations where one but not both of these courses is given; consequently the author must include in his biology textbook certain elementary materials which are certain to be covered in the general science texts. Edmiston (349) in an extensive study of overlapping in science reached the conclusion that where general science is studied, one semester of time now devoted to biology, physics, and chemistry in high school could be saved if needless repetition of topics was eliminated.

Subjectmatter content—By an analysis of modern textbooks of general science Heiss (350) found that the materials were grouped under these unit headings: Atmosphere and Weather; Water, Water Supply and Sewage Disposal; The Earth and Other Heavenly Bodies; Rocks and Soil; Foods and Nutrition; Life on the Earth; Energy, Work, and Machines; Heating and Lighting; Electricity and Communication; Travel and Transportation; Clothing; and Home and Building Construction. An investigation by Nettels (355) of the scientific interests in grades seven, eight, and nine in Los Angeles revealed 178 different scientific interests. Those for boys in order of their decreasing mention were chemistry, earth, electricity, animals, aviation, and astronomy; those for girls were animals, plants, stars, human body, insects, and earth.

Investigating the subjectmatter objectives or small-unit topics of biology, Persing (356) synthesized 5 curriculum studies, 5 courses of study, and 6 textbooks. Using the number of sources in which each topic was mentioned as the only criterion of relative importance, the investigator obtained 440 objectives. Investigating biology content from a different angle, Weller and Caldwell (359) analyzed 11 textbooks of high-school biology.

They submitted the list of topics obtained to 37 college biologists who were asked to indicate their approval or disapproval of the topics in the high-school biology course and to suggest other topics and procedures which they deemed desirable for inclusion. The findings from this study are worthy of the consideration of authors and curriculum committees.

Hurd (352), working in the field of physics for the secondary school, conducted an extensive and significant series of investigations on the reorganization of content or subjectmatter to meet the needs of pupils enrolled in the subject. He (352) summarized the results of his preceding studies in the introduction to a further extensive study the objects of which were: (a) to use an individual plan of instruction, based upon the analysis of pupil responses to preliminary test items, for securing complete learning of the unit elements; and (b) to stimulate desirable supplementary specialized activities. Some of his important conclusions from these studies were:

1. Instruction should probably have for its objective the mastery of a few intensive teaching units, rather than of the whole subject of physics.
2. Worksheets are a great help to many teachers in securing more satisfactory achievement ratings.
3. Definite remedial instruction based upon analyses of errors greatly increases pupil achievement scores.
4. Definite and concise statements of immediate and ultimate objectives help greatly as criteria for selecting subjectmatter.
5. The provision for specialized activities or projects is a workable method of caring for individual differences.
6. The teacher is a very important factor in pupil achievement.
7. Evidence from these experiments favors classes in physics of fewer than twenty pupils, if high achievement is a specific objective.
8. Classes of from twenty to thirty showed higher achievement than classes of more than thirty.

This last conclusion, contradicting as it does the conclusions of some investigators of similar problems in other fields, indicates the pressing need for studies to determine optimum curriculum materials for small and for large classes.

Scientific attitudes and scientific method—An impressive and valuable group of studies of unfounded beliefs includes three investigations by Caldwell and Lundeen (343, 344, 346), and one by Maller and Lundeen (353). The conclusions reached are that young people possess unfounded beliefs as a result of lack of correct information; that specific remedial instruction is necessary as a corrective; that such instruction can be incorporated in regular curriculum units; and that as a result of such remedial instruction the pupils show a substantial gain in the establishment of correct ideas. A somewhat similar study by Weller (358) with sixth-grade children led the investigator to conclude that "the material of elementary science provides the means of developing desirable attitudes and skills in problem solving if attention is focused on this aim." Downing (348), experimenting to find the extent to which the present teaching of science

contributes to "the elements and safeguards of scientific thinking" gave tests to 2500 pupils in grades eight to twelve in a large number of schools. Pairing on the basis of intelligence quotient, he compared the scores of one group who had studied science with the scores of another who had not. He summarized the results thus: "The conclusion seems apparent that there is no evidence in the data given that high-school pupils acquire skill in scientific thinking as a necessary by-product of the study of scientific subjects as at present taught."

The chief present difficulty in all investigations of scientific attitudes and scientific method lies in the testing. The most pressing need, therefore, is for the invention of more complete, reliable, and valid tests of these outcomes than are now available.

J. Mathematics[1]

The present report was modified by the fact that extensive reviews of the studies in mathematics have appeared in other publications (360, 361). There is an effort here to select the more comprehensive and the more significant. With regard to measuring instruments, only studies of high reliability are included.

Curriculum—Lide (366) analyzed selected courses of study representing seventy-nine schools and systems scattered over the United States. Mathematics in junior and in senior high-school grades were considered separately from the standpoint of objectives, required and elective courses, content, and adaptation to pupil needs and interests. Factors influencing the production and uses of courses of study were discussed, and specific practices in selected schools described. These were among the major findings:

1. The National Committee on Mathematics has had wide effect on courses of study and practice.
2. Usually the outlines of courses of study are closely connected with textbooks.
3. Objectives given in junior high-school grades are mainly practical ones but also include disciplinary and cultural aims. The course is designated as general mathematics or simply mathematics in 60 percent of the schools.
4. Materials for junior high-school grades are organized psychologically more than logically; activities are related to children's present as well as their future needs.
5. In the senior high school the courses are more nearly college-preparatory in nature; materials of instruction are organized logically rather than psychologically.

Billett (362:63-94, 330-32) made a study of provisions for individual differences among pupils. Homogeneous grouping in various fields in *highly selected* schools was included. The extent of grouping in mathematics decreased from grades seven through twelve. This was probably due to a decrease in number of pupils enrolled per grade, thus making grouping less practical, and to an increase in differentiation of courses and curriculums in the upper grades, thus making grouping seem less needful.

[1] The writer is indebted to Dr. Orie I. Frederick who assisted in the preparation of this section. His services were especially helpful in applying certain criteria to determine the exclusion of studies.

In the relative proportion of classes in grades seven to twelve having homogeneous grouping, English came first, mathematics second, followed by social studies, science, and foreign language. Next to English, social studies and mathematics were most uniformly required of all pupils in the lower grades. The extent of grouping in these fields in the lower grades ranked high and compared favorably with the extent of grouping in English. In the upper grades, where the courses in mathematics and social studies tend to become elective, the extent of grouping decreased at a rate markedly greater than the rate in English.

Whitcraft (371) investigated the influence of the College Entrance Examination Board on mathematics in secondary schools, by ascertaining the number of pupils taking the Board examinations and the number of schools the pupils represented; analyzing questions used in the examinations in algebra and geometry over a thirty-year period; analyzing 38 high-school textbooks in algebra and 48 in geometry; analyzing 28 courses of study in mathematics; securing opinions of 125 teachers of secondary-school mathematics; and ascertaining opinions of 49 superintendents of schools and 5 curriculum specialists. The number of candidates for the College Entrance Board examinations in 1930 was 23,478 representing 1959 widely scattered secondary schools. Twenty-nine percent of these pupils wrote on mathematics. The increase from 1905 to 1928 in the number of pupils taking College Entrance Board examinations was two and a half times the percent of increase in secondary-school enrolment during the same period. Certain trends discovered in the examinations were:

1. Factoring has been reduced from six to three types.
2. Highest common factor and least common multiple problems have practically disappeared.
3. Exercises in graphs and trigonometry have been added.
4. There is a tendency toward more practical verbal problems.
5. Emphasis is increasing on those theorems which were starred in the 1923 requirements in geometry.
6. The number of exercises requiring proof or construction is decreasing, but there is no noticeable change in the number of exercises which require solutions.

More than 50 percent of the teachers responding and 37 percent of the superintendents thought the Board examinations and requirements had exerted great influence. Some thought the examinations aided progress and others thought they hindered. Authors of textbooks in algebra and geometry apparently give more weight to the requirements of the College Entrance Examination Board than to the Report of the National Committee on Mathematical Requirements.

Freeman (365) made an analysis of ten textbooks published from 1896 to 1901, ten textbooks in current use in 1928, and five recent textbooks published after 1925. Some of the trends found were:

1. Efforts toward establishing a concrete basis for the beginnings of demonstrative geometry.
2. An attempt to apply principles or theorems in various situations.

3. Less attention to scientific rigor and more to psychological considerations.
4. More training in logical thinking versus memorization.
5. An effort to effect some correlation with other subjects.
6. Increased attention to individual differences of pupils.

Vocabulary—Pressey, Pressey, and Zook (368) sought to determine which of several hundred specialized words used in the average geometry textbook constituted the essential "core." A frequency count was made of technical words in three standard texts. The 169 words occurring 10 or more times per book were considered in the light of the ratings of 38 geometry teachers as to the importance of each word for teaching. The words were also scrutinized as to their real "technical-ness." Seventy-seven terms remained and were presented in the article. Those that seemed to have little practical value outside the classroom were starred.

L. C. Pressey and Moore (367) gave vocabulary tests in five cities of varying sizes. These vocabulary tests covered 106 technical words in arithmetic, 49 in algebra, and 88 in geometry. The arithmetic test was given to children in grades three through twelve. The algebra and geometry tests were given in grades seven through twelve. The total number of tests given in each grade was from 406 to 643. In all cases, all the pupils in the grade were tested, not merely the children in the mathematics classes. The findings showed that some terms are learned early and are remembered throughout the high-school period level. Other terms are learned in the grade in which they are taught and are then forgotten. Still other words are never understood at any time by more than a few pupils. The median mastery of technical vocabulary in arithmetic reached 88 out of 106 and then seemed to remain constant; the median of 22 terms out of 49 in algebra was never exceeded, and of the 88 geometry terms no higher median than 51 was attained. "Inadequate mastery of fundamental terminology [probably] is one of the most important reasons for the difficulty encountered by so many persons of all ages and social strata in dealing with anything of a mathematical nature" (367).

Measurement of achievement—Breslich (363) discussed the characteristic properties of the function concept; how to attain the objective of functional thinking; making the function concept the unifying factor of mathematics; the construction of a test to measure functional thinking; and the findings from giving the test to 901 pupils in grades nine through twelve.

A few of the findings were:

1. There was a tendency for gain from grade to grade in the ability to express changes illustrated in simple statistical graphs.
2. There was a tendency of pupils to prefer to study changes in functions by use of tabular rather than graphical representation.
3. Dependence was far more difficult to recognize in formulas than in verbal statements.
4. The extent of inability to recognize relationships in equations was surprising.
5. All the groups possessed little knowledge of the language of variation.

The report was the first step in an investigation designed to measure the development of functional thinking.

Butler (364) built a multiple-choice test to measure mastery of the 63 concepts listed by Schorling (370) in his 1925 study of objectives in the teaching of junior high-school mathematics. By use of the alternate-items (chance-halves) method and the Spearman-Brown formula the coefficients of reliability were found to be .91 $\pm$ .01 on the basis of scores of 190 pupils in grades seven through twelve. The test was given later according to specific directions to 1658 boys and girls in the seventh, eighth, and ninth grades of nine schools ranging in size from large metropolitan schools to small village schools and including both traditional 8-4 plan schools and reorganized schools.

Some of the main findings of the investigation were:

1. The median pupil completing the seventh grade had mastered a little over one-third of the 63 concepts included in the test.
2. Grade-to-grade improvement in mastery was substantially uniform.
3. The median pupil completing the ninth grade had mastered about two-thirds of the concepts.
4. Mastery of the concepts within any given grade was characterized by wide variability.
5. Most of the individual concepts showed progressive mastery from grade to grade.
6. Some of the individual concepts seemed to be mastered much more thoroughly than others, for example, those frequently encountered in extra-school situations.

The Committee on Individual Differences (369) chosen by the North Central Association and the National Council of Teachers of Mathematics made a preliminary report of their study of teaching of mathematics to slow pupils. A unit on angles was given to 143 seventh-grade pupils in four classes in Flint, Michigan, and to 127 children in grades seven and nine in Detroit and results were measured by a carefully formulated test. The investigation involved five teachers, all of them with special training for junior high-school mathematics. Certain of the conclusions were: (a) dull pupils can learn academic tasks at a very high level of achievement; and (b) the rate of forgetting does not appear to be great for the slow pupil after mastery is driven to a high level.

K. Art

Measurement of abilities and interests—Of research studies, published in the past three years, relating to the art curriculum, the largest number deal with measurement of abilities and interests. This is not surprising since the original impetus to research in art education came from psychology. Kinter (398) presented an extensive survey of studies relative to the measurement of artistic abilities. Today there exists a number of standardized tests to measure ability in art skills and appreciation as well as studies of children's interests. One of the best known, the McAdory Art Test (423) has age, grade, and adult norms for each sex. Other tests include the Kline-Cary Freehand Drawing Scale (400) which deals with

design and composition, and Todd's test (430) which measures improvement under supervised practice. A number of attempts have been made to measure the validity of standard tests and to establish relationships with other factors. Carroll and Eurich (375) reported that abstract intelligence has little if any relationship to critical ability in art on the college level, and generally abstract ability affects art judgment only at the extremes.

In a series of studies made under the direction of Meier at the University of Iowa (409) the hypothesis was advanced that esthetic sensitivity, measurable through esthetic qualities or principles of art, constitutes the most certain index to artistic capacity. Among the studies by Daniels (381), Jasper (395), Whorley (438), Williams (439), Walton (433), Grippen (391), Dow (382), Rodgers (421), Tiebout (429), Dreps (383), and Jacobson (394), there are those which deal with esthetic qualities, such as balance, rhythm, color, and imagination. Other studies deal with the influence of environment and a comparison of the behavior of artistically superior and inferior children.

Eng (384) made an extended psychological interpretation of one child's drawings from the age of ten months to eight years and observed an automatic synthesis at the very beginning that proceeded to higher syntheses at various stages based on personal observations, mental images, feelings, will, etc. Knauber (401) discovered that when children were asked to draw pictures of whatever might interest them, they drew a great variety of pictures stimulated by new and interesting factors in the environment without regard to distinct patterns. Taylor (428) mentioned specific interest in trees and buildings in a study of the drawings of children in the primary grades. Zinn (440) investigated originality in children's drawings, found a positive correlation with age and experience, with superior results among boys, and concluded that originality was a special skill. Wall (432), on the basis of a questionnaire answered by 758 pupils, concluded that esthetic taste is native, intuitive, and universal, and can be divided into three clear states chronologically: birth to eight years, eight to twelve years, and twelve to sixteen years.

In a study of paired groups, White and Johnson (435) reported a higher degree of discriminatory appreciation of pictures in the group that was given definite instruction. Waymack and Hendrickson (434) determined that after definite instruction, elementary-school pupils reacted to pictures in terms of art fundamentals as distinguished from their former appreciation in terms of such non-esthetic elements as interest in people, scenery, etc. The Mendenhalls (410) tested junior high-school children's preferences for pictures and found that distinct preferences and dislikes persisted during repeated exposures to these materials. McLandress (406), investigating the relation of art principles to everyday life objects, found color to be the most frequently mentioned element, and home objects the most frequently mentioned objects.

Content and method—Crowley (380) reported on effectiveness of five methods of teaching design. The method of directed observation received the highest rating. Katz (396) investigated the possibilities of films in art courses, and concluded that the film could be of distinct aid in the art curriculum. The New York Board of Education (418) reported the inauguration of a series of radio programs explaining the art curriculum. A study published by the Federal Board for Vocational Education (388) on the relation of art to the home, suggested teaching methods and listed illustrative and reference materials. The parent-teacher association of Lincoln School (415) edited a volume on New York's resources for the use of leisure time and included a section on art activities with specific information on museums, dealers, schools, and publications. Levy (403) reported on the tasks of a vocational guide in art and analyzed the facilities for vocational art education. Hawley (392) analyzed the needs for reference materials as expressed by art teachers and reported the improvements in instruction when these needs were met. Schnyder (422) investigated the correlation of museums with public schools in art education and found that the school was not taking advantage of the educational facilities and programs made available by the museum. Gall (389) reported how some schools were providing for talented pupils.

Status and trends of the art curriculum—Keppel and Duffus (397) presented quantitative data regarding the increase in number of art teachers, pupils taking art courses in schools, and the number of schools giving required courses in art. They also discussed the closer tie-up of the art curriculum with the home, community, recreation, and industry.

Farnum (385, 386, 387) and Hilpert (393) reported on the new developments in terms of wide extension of art activities and more professional quality of work. The three major trends they found to be (a) esthetic art appreciation as required courses; (b) utilitarian (applied design and handicrafts and correlation of art with other school subjects); and (c) creative expression (full expression and the discovery and encouragement of talented pupils).

Smith(425) analyzed the aims of art education over a period of forty years as reflected in the proceedings of the major art associations and found that appreciation, visual training, and the development of a graphic vocabulary have held their places as major aims; while free expression, application of art to daily life, and the use of tests have appeared recently. Whitford (436, 437) accounted for the recent sharp decline in art instruction by the fact that art educators have failed to expound the real educational value of art to the school. He suggested a curriculum divided into social, vocational, and leisure-time objectives.

Further studies based on the examination of courses of study and other materials dealing with the art curriculum were reported by Crossman (379) and Twombly (431) in terms of changing conceptions; Larson (402) for elementary schools; Mebane (408) for the junior and senior

high schools; Moore (411) for progressive schools; Mullins (412) for junior colleges; and Skillman (424) for all colleges.

Pearson (416) analyzed the dominance of the profit motive in American industry and its destructive effect on creative art production and creative art education. He urged creative practice in the schools and its extension to every aspect of the pupil's life.

Application of research to curriculum materials—For the guidance of curriculum makers, Carey, Hanna, and Meriam (374) compiled a catalog of units of work, activities, and projects up to 1932 in which there are sections devoted to architecture and art. The best courses of study published within the past three years have included the results of the most advanced researches and reports of trends. In method, there is more attention given to art fundamentals, a greater variety of art activities, greater freedom and special provisions for talented pupils. In content, art is more closely related to dress, the school, home, recreation, and physical aspects of the community. There is also a closer relationship between art and other school subjects. An increasing number of integrated courses is reported.

Among the elementary art courses which illustrate these newer trends are those of Pittsburgh (417), Cleveland Heights (377), Long Beach (404), and the state normal school at Cheney, Washington (376). At the secondary level are those of the City of New York (414), Rochester (420), Baltimore (372), and Long Beach (405). Some of the integrated courses deserve a place among the research studies from the point of view of controlled observation and experiment. Barnes and Young (373) reported an integrated course for the sixth grade in *Children and Architecture*. Sweeney, Barry, and Schoelkopf (426) described a junior high-school experiment with an integrated course in the study of the Far East. Tannahill (427), Klar, Winslow, and Kirby (399), and Mathias (407) offered suggestions to teachers and administrators relative to tasks ahead in the construction of art curriculums.

Suggestions for further research—In view of the newer emphasis on creativeness and individuality, the question must be raised as to whether or not there are any basic art skills that should be uniformly learned as in arithmetic or spelling. Even if we should assume that every child should know how to draw a figure, a house, a rabbit, etc., should this drawing be graded on the basis of its photographic fidelity? The most valuable type of scale in the light of present objectives might be a way of measuring individual growth without reference to any absolute standard. With the growing acceptance of "modern" art and the rapid advances in industrial design, there is also need for a type of validation which will check the illustrations used in the light of these changing tastes and standards.

In the field of content and method, there is yet much to be done in determining the best methods of teaching such skills as figure drawing, design, and perspective. Studies of age and grade placement of these methods and also of content material would be of real aid to the curricu-

lum maker. An evaluation of methods used to encourage creative expression and provision for talented pupils are problems of real importance. More effective evaluation of courses of study and experiments in integration could be accomplished if the existing criteria were brought up to date. Experimental studies should be made in the relation of art to the community and in the use of community resources as a part of the art curriculum.

The curtailment of art instruction brought about by the depression has shown the need for relating the art curriculum to the world outside and to the school as a whole. Perhaps the major task in the art curriculum is to determine precisely what the relationship is between art and the fundamental social, economic, and political forces of our time. How will the changes now being made in our economic structure influence these conditions? Can the artist have any part in the search for a better society? Can the art curriculum make any significant contributions to preparing students for more creative and enriched living both in the school and in the world outside?

In recent books on art (378, 390, 413, 419) we find a vital concern with the relation of art to the major social forces of the day. Only when those interested in research relating to the art curriculum begin to face these fundamental issues, at the same time that they continue their research in measurement and method, can we be assured of really significant progress in art education.

L. Music

The amount of research in various branches of music is increasing rapidly. A decade ago, the meager researches available dealt primarily with theoretical problems of a psychological and acoustical nature. Since then investigations have been made in the field of music education which deal with pedagogy, guidance, administration, and esthetics as well as psychology and acoustics. While some of these studies are fragmentary, they represent real progress.

Further research, however, is sorely needed. We must authenticate many of our practices in music education. We must learn more about music talent in its various manifestations. We must study racial and national musical traits. Manipulatory aspects of music performance need investigation. Auditory illusions, practically unexplored, require research. Vocational guidance, as it relates to music, should be put on a more scientific basis. Sociological and biological studies, which are conspicuous by their absence, may, at some future time, enable us to establish music education on a superior philosophy.

Available research studies which have a bearing on the music course of study are classified in this review under these headings: tests and measurements, music appreciation, race studies, psychological studies, pedagogical studies, and administration. Illustrations of the most significant

studies which have appeared during the past three years are cited under these heads. During this period at least a dozen good music texts have also been issued. They are omitted from this review, which is confined wholly to research studies. These texts, however, offer valuable suggestions to those building music courses of study.

Tests and measurements—Farnsworth (460) discussed the reliability and validity of tests devised to measure musical talent. The report of the Committee on Tests and Measurements of the Music Teachers National Conference (473) reviewed the values of testing to music education. It showed that new tests are contributing valuable data to music psychology, vocational guidance, and music pedagogy. Board (448) analyzed the results of a series of music tests given to a whole school in order to discover a basis for formulating a school program of musical education.

Studies in the selecting and measuring of musical talent were reported by Barnard (445) and Highsmith (466), and by Larson (472) and Burns (451), both of whom measured musical talent for the prediction of success in instrumental music. Williams (488) offered a critique of measures of musical talent. Test (485) discussed the predictive values of tests in music. Burns (450) reported an experiment in guidance. Musical capacity measures of adults reported after music education were considered by Stanton and Koerth (483).

Church (453) pointed out the use of tests and measurements in grouping music students in junior high school. The musical ability of sixth-grade pupils in Minneapolis was studied by Haveson (465). She found that the correlation between factual knowledge and performance is higher than that between intelligence ratings and school marks. Erlanson (458) studied introversion, extroversion, honesty, and suggestibility of music and non-music students. Nelson (474) studied the relation of mental and musical ability.

Bowman's statistical study (449) on the Kwalwasser-Dykema Tests, based on approximately 2000 cases, presented norms, reliability coefficients, and inter-correlations. Whitley (487) outlined the relative merits of the Seashore and Kwalwasser-Dykema music tests.

Among the music tests issued during the past three years are the Kelsey Test of Musical Accomplishment (469), a factual knowledge test for the grades and high school dealing with notation primarily; the Kwalwasser-Dykema Tests (471); two musical achievement tests (443, 462); Otterstein and Mosher's Sight-Singing Test (475); and the Providence Inventory Test in Music (442).

Music appreciation—Harrison (464) found that in rural schools there is a definite gain in musical information from listening to Damrosch concerts. Ewbank (459) measured the effectiveness of the radio in teaching music in sixth, seventh, and eighth grades in twenty-five rural schools in Wisconsin and found that all three grades made progress. Engel (457), through his study of mood responses to music of junior and senior high-

school pupils, found that the more talented the pupils were, the more varied and discriminating were their responses. Cameron (452) found that technical analysis has value in teaching an appreciation of music. Adler's study (441) revealed that most listeners prefer the obvious to the more subtle in music. Variations in esthetic environment of artistic and non-artistic children were reported by Rodgers (479).

Race studies—Gardner (461) studied musical ability in young children of different nationalities and discovered wide variations in ability and some significant differences according to nationality. Certain phases of the musical ability of white and colored children were studied by Streep (484), who found that the median scores of Negro children were better than those of white children in rhythm and consonance. In certain phases of musical ability Gray and Bingham (463) found white children superior to both mulattoes or Negroes, and the former superior to the latter. He found a relatively high correlation between total musical scores and index of brightness. The musical talent of Chinese attending public schools in Chicago was studied by Porter (478) and the musical talent of groups of Japanese, Indians, and whites was compared by Ross (480).

Psychological studies—Jacobsen (468) photographed eye movements during the reading of music. He concluded that difficulties in music reading are due to the fact that unskilled readers are unfamiliar with both the notation and the keyboard of the instrument; or, in the case of vocal music, unfamiliar with the Latin syllables or the pitch-relations of the tones of the scale. Wolner and Pyle (489) reported that even children with deficient ear mechanisms can be trained to distinguish pitch. Jacobsen (467), however, concluded from his study of the influence of hearing defects that children with these defects cannot hear pitch changes accurately and therefore cannot sing in true pitch. They cannot hear loudness changes and cannot perform them. Seashore (482), in answer to the question, "What is musical ability?" presents an analysis of the hierarchy of traits and capacities which constitute musical talent. Seashore (481) also reported on the voice vibrato, studied by means of phonophotography.

Pedagogical studies—Phillips' case study (476) of the monotone problem in the junior high school revealed that monotonism is more prevalent among boys than girls. The causes are timidity, self-consciousness, lack of musical opportunity and individual training, defective hearing, and lack of talent and interest. Bannan (444) concluded from her evaluation of six elementary music courses that no one of the six methods can be recommended as supplying all the needs of music education. Bartges (446) found the mechanical method superior to the melody method in teaching sight singing. Coleman (455) offered guidance in children's composing and described the Lincoln School Symphony (454). Kittle (470) reported a study to discover the vocabulary necessary for an intelligent understanding of the musical content of magazines and newspapers.

Music administration—A report by Pierce (477) is a part of the National Secondary School Survey. Her chief findings are:

1. A course in general music is almost always required of all pupils during the first two years of junior high school.

2. Beginning with the third year of the junior high school and continuing throughout the senior level of instruction, most schools place music on an elective basis, allowing pupils to take work in theoretical, appreciation, vocal, and instrumental subjects.

3. Music educators agree on objectives of instruction, but use different means to achieve them. Definite courses of study have been accepted in some cases, while in others more tentative plans are undergoing a process of testing before being accepted. Some directors set up certain goals to be achieved and through frequent consultation with teachers and observation of teaching, guide the work without adhering strictly to written plans.

Beeson (447) outlined methods of correlating music with other school subjects. Weinstein's study (486) reported the discovery of talented young musicians, their development in New York City junior high schools, and their later training. According to Earhart and Gatto (456) the superiority of the creative approach over the "general music vocal" approach is revealed by tests in sight-reading, taste, musical knowledge, and musical performance.

M. Industrial Arts and Vocational Education

What junior high-school graduates should know and do in the field of industrial arts—The largest and most significant research project in the field of industrial arts and vocational education, undertaken during the period 1931 to 1933, is that of the Committee on Standards of the American Vocational Association (492) which has been operative since 1927. This Committee enlisted the cooperation of interested persons in formulating a list of things pupils should be able to *know* and *do* by the end of the junior high-school period. Nearly 250 *know* items and more than 600 *do* items are tentatively included in the Committee's report for 1931, as well as in various numbers of professional magazines. The Committee is already moving forward in its work on several problems suggested in the report as "pressing for solution." One of these is a study on testing as an outgrowth of the completed "standards" list.

The Committee report disavowed an "attempt to solve the problem of determining which of these units, if any, should be taught at any particular time, in any year or grade, or in a course of any specified length. The solution of these problems must come later." The Committee recommended that the units be taught in connection with "the construction of suitable projects" rather than "topics" or "assignments" as such. The report specifically stated that the "Committee is concerned with an effort to place in the hands of the shop teacher means and methods which he can use in improving the quality and effectiveness of his teaching, and it has no interest in proposals to 'standardize' instruction or to 'impose' a program on anyone."

The fairness and earnestness of the committee cannot be questioned. The research method is acceptable. The standards lists are helpful as

reference material. Yet, there is involved an element of grave danger which starts with the research, as such, widening into an influence which in time by its sheer weight and momentum may reduce industrial arts teaching to such a standard pattern that individual teachers will be foolhardy to attempt to deviate from it. Thus the emphasis will be toward meeting the standard of pupil attainment of knowledge and skill which has been set up. Teachers can then have little opportunity to think and act upon their judgments and intuitions regarding the best development of pupils using industrial arts as a means rather than an end. There is a profound difference between the two objectives and it is hoped that forthcoming studies will clarify the issue.

Integration and differentiation of courses—The Oak Lane Country Day School and the Lincoln School are experimenting with unified or integrated curriculums in which the industrial arts are important factors. There is a possibility that this kind of experimental work may prove a counter tendency to the "standardization" danger cited above. Pittsburgh (513) is experimenting with tentative courses of study in mechanical drawing on both the junior and senior high-school levels, general metal exploratory courses for grade 8A, woodworking for the junior high and machine shop practice on the senior high-school levels. These courses differ in character according to the nature of the subject and the advancement of the pupils for whom they are intended. They are thorough and show signs of the "standards" influence, yet contain suggestive and tentative lists of projects in sufficient number to give pupils ample freedom of choice with their interest centered on the projects. The general metal course has "particular attention given to its content so that it may be changed, where necessary to meet the capabilities of the pupil and improved upon by suggestions, new projects, or new designs as the teacher may discover by its constant use." There is an emphasis in these courses upon teacher direction. Koos (508), in a study to determine the dynamic tendencies of secondary-school curriculums throughout the country, found a great increase in schematic arrangements of courses designed to meet the needs of particular groups of pupils. The social studies were the only academic subjects showing notable gains and there was a tendency for non-academic subjects to gain at the expense of academic subjects. The industrial subjects gained in influence.

Selection of content of industrial arts courses—Ellingson (499) found that the most difficult task to perform in curriculum construction is to select the materials that should go into courses. He presented several advantages for an activity analysis as a basis for content. Christopherson (497) made an analytical study of state industrial arts courses to discover policies and instruments for promotion and supervision. Caswell (496) studied the literature for criteria of value for the selection of units that should be included in secondary-school industrial arts programs. The major outcome focuses attention upon "the vastness and importance of the

problem rather than to a definite solution." A minor outcome is the incomplete scale for selecting units. He concluded that an intelligent understanding of the interdependence of all industries may best be achieved in the type of shop organization which is suggested by the name "laboratory of industries." A "laboratory of industries" is best described to the uninitiated by the more common term "general shop" which it resembles closely. Bauersfeld (493) concluded from a study of graduates of four-year technical high schools that technical education is good preparation for all avenues of life and that a four-year technical high-school course pays big dividends as an investment for the future productive period of a worker. Fink (500) also attempted to arrive at an estimate of the vocational value of technical high-school courses in a questionnaire study of the reactions of 577 graduates of technical high schools. Recognizing the subjectiveness of his data, he made recommendations designed to improve the vocational effectiveness of the technical high-school program of studies.

General shop vs. unit shop courses—Fleming (501), in determining the current practices in industrial arts in a number of typical American cities, found that interest in general shop work was as keen as in unit shop work. The quality of work was not so good, due to the relatively shorter time given to a particular kind of work and the greater need for individual instruction. "To the student who is self-reliant the general shop offers a broader training." Richards (515) set forth recommendations in regard to general shop organization and management, subjectmatter, and sample instruction sheets.

Woodworking—Torgerson (517) studied the selection of unit operations in junior high-school woodwork and their ranking for importance, time, difficulty, and necessary drill. Gilson (502) analyzed seven science books and five woodworking texts to determine the science items needed for an adequate understanding of woodworking. Bergstrom (494) listed the common processes and operations of cabinet-making, carpentry, and pattern-making courses to provide a basis for a more extensively functioning exploratory course.

Household mechanics and farm shop courses—Bottenslog (495) determined the household jobs which were being done in the homes of Asheville, North Carolina, by members of families or outside workmen. Fifty-four activities were grouped arbitrarily into five divisions and several jobs in each division were outlined to illustrate the kinds of material which might be collected for aids in teaching and the making of instruction sheets. The suggested course material is intended to supplement woodworking, the only industrial arts work being offered in the schools. Prebble (514) outlined courses in home mechanics for boys from materials obtained from homes of eighth- and ninth-grade pupils, teachers, principals, superintendents, college professors, and persons who have written magazine articles on the subject.

Strube (516) surveyed the content which Master Farmers and county

agents of Kansas considered important for high-school farm shop students to "know" and "do." Combined ratings were found for types of repair and new construction work, new construction work and farm shop skills and information. An analysis of jobs to determine difficulty, range, and importance of skills and information was included to give wider opportunity for shop experience.

Automechanics and metal work—Jennings (507) analyzed current changes in automotive service occupations as a suggestive technic for course and curriculum construction. McKee (511) cited statistics to show the need for trained auto mechanics and submitted a proposed plan of training and a suggested curriculum which he evaluated in terms of "recognized criteria" for an adequate vocational training program. Hartman (504) analyzed the auto mechanics trade and, after consulting seventy teachers of auto mechanics by means of a questionnaire, organized courses of study for the junior and senior high-school levels, with recommended shop layouts and equipment lists. Alberty (490) listed the commonly used teaching aids for auto trade classes, methods of selection of subjectmatter, and predominant teaching practices in related subjects which he obtained from eighty-one teachers and tradesmen in various parts of the United States.

Waldeck (519) found that metal work is playing an ever increasing role in the development of civilization, that it is justifiable as a school offering, and that suitable instructional material is not yet available for junior high-school pupils.

Mechanical drawing—Hale (503) examined a total of 2,504,488 square inches of printed material in 102 newspapers, 60 magazines, 126 advertisements and circulars, and 56,509 pages of school textbooks, and analyzed the various kinds of drawings for mechanical drawing content based on consumer needs. Voth (518) gave a table of 1425 words in frequency order, as well as alphabetical order, which he constructed for a reading vocabulary from the most frequently used words, selected from 102,000 running words in commonly used mechanical drawing texts. He gave, also, a list of words peculiar to mechanical drawing by eliminating from the 1000 commonest words, found in mechanical drawing texts, all those words appearing on the Thorndike and Ayer lists of 1000 commonest words.

Related science—Kushma (509) by interview, letter, and questionnaire, attempted to establish facts concerning the teaching of related science in trade and industrial education curriculums. In his study he discussed size of classes, text and source materials, courses, time allotments, and the training and certification of teachers. Collins (498) evaluated the work of 55 occupational exploratory classes in the 23 junior high schools of Los Angeles.

Teacher-training courses—Jackey (506) attempted to evaluate the basic curriculum of vocational teacher-training in trade and industrial educa-

tion in California through a survey of previous studies in this field, a minute topical analysis of the syllabi of the 8 basic curriculum courses for the training of trade and industrial teachers, a checklist of 225 topics obtained in the analysis which was evaluated by supervisors and teachers in the field, intensive personal interviews with 30 of the above teachers, and the records of trainees as determined by the quarterly reports of the Division of Vocational Education, University of California at Los Angeles. He found several inadequacies in the basic curriculum and made recommendations for tentative changes. Lacy (510) assumed certain definite industrial arts objects for a specific teacher-training institution and set up a curriculum designed to realize these objectives. Alderson (491) examined the industrial arts teacher-training curriculums of 20 institutions for indications of trends.

Only a few years ago no attention was given to needed research in the industrial arts education area. Hunter (512) has just completed an annotated list of 800 theses in industrial arts and vocational industrial education. The outlook for the future is at least heartening.

N. Home Economics

Curriculum studies in home economics during the past three years have dealt with pupil activities and interests, activities of adults and their opinions of needs, and surveys of present courses almost to the exclusion of studies of other problems essential to the development of a curriculum which would prepare pupils for family life in a changing social environment.

Pupil activities—Most of the studies of pupil activities have been carried on as a part of state or city curriculum revision programs, and by the questionnaire method (531, 532, 535, 552, 555, 556, 559). There has been a tendency to vary each study sufficiently in content and form to make comparisons between studies practically impossible. Those questions which do allow comparison and the one study directed toward this problem indicate, however, that home activities of pupils in the seventh through the twelfth grades are too nearly similar to serve as a basis for grade placement of material or to distinguish differences in content needed in different sections of the country. There were found to be no significant variations in activities of pupils of different ages, grades, and geographical locations. Size of community, however, has been found to affect both the kind and number of activities of pupils (532, 535, 540, 545, 556). The two limited studies of activities of pupils below seventh grade suggest the need for further study and perhaps the reevaluation of content with these grades in mind (525, 546).

Pupil interest—Pupil interest as a basis for grade placement has had limited study. Beeman (523) asked pupils to check what they like to do and to give their reasons. Teachers were also asked to check interests of pupils with evidences of their interests. She found that teachers'

ideas of girls' interests differed in several important particulars from those listed by the girls and that the interests tended to change with increased age from personal to social, from immediate to future satisfaction, and from vague desires to more definite wants. The effect of school training on interests has had practically no study, although Humphrey (535) and Thompson (556) found a tendency for girls who had had home economics work in the ninth grade and above to be more interested in home activities than those who had not had this training. Since home economics was elective for these grades, however, it was not clear whether the home or school situation was responsible for these interests. Cunningham and Connor (530) showed many overlappings in interest at different grades but suggested experimental content in pre-parental education for four different grade levels.

Home experience and achievement—The relation between home experience and achievement has had little study. Wilson (560) found ninth-grade girls in rural Mississippi, who had had no school work in home economics, using many inefficient methods of work and failing often to save energy by using even the meager labor-saving equipment available. Badgley (529), comparing the types of activities of pupils in one locality with course-content and with achievement, found little correlation between achievement and the home activities of the pupils. The difference was especially great where the content given in the course was theoretical and not closely tied up with the home responsibilities of pupils. Parker (544), limiting her study to knowledge of certain foods and clothing items, found a close correlation between this and the home experience of seventh- and eighth-grade pupils and a positive correlation also between knowledge and the economic status of the homes. Practically no study has been given to accomplishment resulting from experiences out of school in other phases of the development than those of knowledge.

Activities of adults and their opinions of needs—Most of the recent studies of the kinds of adult activities in the home have been made through time records kept by over 1000 rural and small town and a few city homemakers (527, 536, 549, 558, 561). Kneeland (536) listed from these the kinds of activities making up a working week of from 52.5 to 61.5 hours. Arnquest and Roberts (522), studying the effect of equipment on several of these activities, found that higher standards were attained rather than the time reduced when equipment was available. Henderson's study (534) of a small but carefully selected sample of women in one county suggested the need for further research on the phases of home activities on which training is not needed and the phases on which special groups need help. Lindquist's returns (539) from 355 families with "well-trained" and "successful" homemakers revealed that they had many difficulties in management of the income, time, energy, community facilities, and human resources in attaining the goals set for homemaking. Proper training of children was thought to be one of the biggest problems.

The studies of activities have been supplemented by investigation of the opinion of adults and other evidences of need for homemaking education of different sorts. Sherbon and Ferris (553) reported that graduates of the University of Kansas felt the University curriculum would have been of greater service to the American home if more assistance had been given on establishing, financing, and managing the home, and on certain aspects of family and marriage relationships, child training, and family health. Lindquist (538) found that child development, laundering, and care of the house were, in the opinion of 306 "successful" homemakers with children, the greatest causes of fatigue. Directing the children's training satisfactorily, caring for the house and maintaining a satisfactory standard of living on an inadequate income were the most frequent causes of worry. Factors contributing to satisfactory achievement were thought by the homemakers to be: physical constitution, managerial ability of the homemakers, the physical plant, housekeeping skills of the wife and mother, other traits and abilities of the individual members, the community, and education.

Hadley (533) determined through interviews with eighty-three mothers the difficulties in child development and aspects of child life upon which they thought they needed help before the obligations of parenthood were assumed. General helps in mental and emotional development of the child, his education, and factors in successful family life were thought to be more needed than specific technics which could be learned on the job.

Woodhouse (562) set up some of the characteristics of family success, particularly those concerned with economics, in 250 successful families. Phillips (548) found many evidences of need for education of homemakers for efficient purchasing. Adams (520) found that "master farm homemakers," checking a list of the objectives in family relations compiled from courses of study, were inclined to agree that most of these should be included in the school program. Rhyan (551) and Thomas (555) found that representative men in business and in industry did not disagree radically from boys regarding the content in home economics which would be most valuable to them. Selecting clothes, practicing thrift, problems of sanitation, hygiene and first aid, appreciating home and family, good books and pictures, labor-saving devices, and child training were most frequently listed as important.

Blazier (524) supplemented the study of the content and organization of home economics education courses in seventy-two institutions by securing the opinions of state supervisors, teacher trainers, and teachers regarding what should be included in these courses. Eleven topics were agreed upon by these three groups as important. Peterson and Brown (547) compared the home economics courses found in sixty-six public residential schools for the deaf with the marital and occupational status of alumni. Nofsker (543) found that opinions of needs found in objectives

for home economics in educational books and periodicals, governmental bulletins, and reports and yearbooks of educational organizations give personal values most frequent mention, family and homemaking values next, and general social values least frequent consideration. Amidon (521) and Lee (537) studied generalizations in science needed by home economics pupils in high school. Child and others (526) indicated some principles in food preparation. These need to be supplemented by further study to determine needed concepts and insights as well as other principles essential for homemaking.

Surveys of existing courses—Surveys of courses have had considerable attention for such a comparatively new subject as home economics. Turner and Hall (557) compiled the course objectives in home relations. Baker (528) analyzed the extent of teaching of money management. Maclary (541) studied the curriculums in thirty-two institutions training home economics teachers.

Trends and changes in family life—Some of the most valuable studies for the home economics curriculum maker have been those indicating the trends and changes occurring in family life. The report of the President's Research Committee on Recent Social Trends (550) summarized several of these dealing with the family and its functions, people as consumers, childhood and youth, new inventions, and increased communication affecting the home, as well as the studies of changing social attitudes and interests and new public welfare, recreation, and leisure-time activities affecting the family and its members. The rich source of material compiled by Sorokin, Zimmerman, and Galpin (554) on rural versus urban conditions of life should not be neglected by those concerned with homemaking education for the many families moving from one of these areas to another. The statistical analysis of Chicago families made by Monroe (542) using 1920 census data gave a picture of certain family situations which could now well be supplemented by a similar study of conditions found in 1930.

Summary—Curriculum studies in home economics still need to have attention focused on changing home conditions. The studies of activities of youth and adults have been suggestive, but they have been so frequently carried on by the survey and questionnaire methods, with inadequate attention to previous studies and by the use of methods which prevent comparison with other studies, that more accurate methods of research are needed. Much more experimental work is desirable and more concentration on such curriculum problems as achievement resulting from certain home and school experiences with different pupils, on results which can be attained by the placement of certain material in different grades, on the generalizations and concepts basic to the homemaking curriculum, and the time required for the attainment of different kinds of homemaking goals.

O. Commercial Education [1]

During the three-year period covered by this report there has been extensive research relative to the status of commercial education. Studies of national, state, and citywide scope have been made at the secondary-school level and in special schools, such as junior colleges, collegiate schools of business, teacher-training institutions, and in Smith-Hughes classes. Studies have also been made of special commercial subjects and of the student and teaching personnel. Considerable attention has been given to the evaluation of commercial curriculums through surveys, listing of types of positions held by graduates and drop-outs, and the summarizing of opinions of graduates, teachers, and employers. Unfortunately, most of these studies are unpublished.

Out of 167 studies in commercial education made during the last triennium, which have a bearing upon the curriculum, 121 are unpublished master's theses and 8 are unpublished doctor's theses which have been reported by 32 higher institutions of learning. Of these, New York University reported 6 doctor's and 16 master's theses; the University of Southern California, 19 master's theses; Colorado State Teachers College, 18 master's theses; University of Pittsburgh, 11; and the University of Chicago, School of Business, 8. Since the United States Office of Education in its annual *Bibliographies of Research Studies in Education* (573, 574, 609, 610) gives complete bibliographical information concerning unpublished theses, to save space in this review citation will be made to the particular bibliography in which an unpublished thesis is listed, rather than citing the complete reference for each unpublished thesis in this volume. In practically every case, unpublished theses can be secured through inter-library loans, by writing the library of the particular institution where the thesis was written. Space here permits only the listing of the many special phases of commercial education which have been studied during the past three years. In this brief review, however, particular effort has been made to include the authors of all studies, so that those interested can go to the original studies for more detailed information.

Status of commercial education—The recent studies, dealing with current practice in the field of commercial education, have been varied in scope. Four studies, those of Cornell (573, 610), DelaHunt (610), and Higgins (610), dealt with secondary education over a national area. High-school commercial education on a statewide or sectional basis was studied by Higgins (573) in Connecticut; by Kelsey (573) in Illinois; by Fink (610) in Kansas; by Ferguson (573) in Louisiana; by Helmstadter (578) in Nebraska; by Soper and Coxe (596) in New York State; by Daring (609) in Ohio; by Clevenger (573) in Oklahoma; by Walters (603) in Pennsylvania; by Larabee (573) in Tennessee; by Jennings (610) in

[1] Attention is called to the fact that the system of numbering references differs from that used in other sections of this *Review of Educational Research*. The reason for this deviation from general practice and an explanation of the form of reference used are given in the text.

Texas; and by Aebly (573) in Wyoming. The reports by the Division of Commercial Education (592) for Philadelphia and by Quinn (610) for Cambridge, Massachusetts, were limited to particular communities.

Another group of studies centered around current practices in special schools or on special school levels. In this group were included Ewell's study (573) of Smith-Hughes high schools in Mississippi; Arnold's study (573) of the cooperative method in New York City high schools; studies by Shields (595) and Fullenwider (573) of the junior college offering; and Smith's study (573) of collegiate business schools. Studies by Thompson (574) dealt with business education offerings in Presbyterian colleges; by Phelps (610) with adult education; and by Holmdahl (610) with high-school post-graduate offerings. Commercial teacher-training programs were studied by Kelly (573) and Sumrall (598). A survey of commercial education in Negro colleges was reported by Oak (574).

A third group of studies analyzed practices in special commercial subject fields. These studies likewise varied in scope. Subject fields studied on a national basis included social-business subjects by Tonne (574); elementary business training by Haynes (573); commercial geography by Cox (574); retail selling by Olander (573), Parker (573), Drohan (573), Colby (573) and Klotz (574); a monograph on bookkeeping (597); business English by Maher (610); and office practice by Holmdahl (610).

Five other studies were statewide in scope. These included Petrie's study (574) of social-business subjects; studies by Brown (573) and Nugent (573) of junior business training; Hamilton's study (573) of office practice and secretarial training; and Mooty's study (573) of economics. Dotson (610) considered shorthand and Roberts (610) typewriting in teacher-training institutions. Three additional studies were made of collegiate institutional practices. Soisson (610) considered secretarial curriculums; Greer (575) and Weir (605), accounting courses.

All of these studies of current practices follow a more or less uniform pattern. They consider such topics as objectives, enrolment, subject offerings, grade placement of subjects offered, teaching methods, textual materials, equipment, achievement standards, subject combinations of teachers, class size, length of class period, and the age, training, and salaries of teachers. Such studies of current practices are valuable, since they afford an opportunity for an appraisal of progress.

These studies, especially the report of a member of the Federal Board for Vocational Education (583), reveal the fact that commercial education programs in rural areas are miniature editions of large-city curriculums. Such a condition indicates a crucial area for curriculum reform in this field.

In addition to the studies enumerated above, others more definitely related to student and teacher personnel status should be mentioned. Those dealing with student personnel included those by Brogdon (574) and Brewer (563) and the one issued by the Oakland, California, Board of

Education (590) on public-school students; by Schoenberg (610) and Weiss (610) on continuation-school pupils; and Whitley's study (573) of private-school pupils. Two studies considered only teacher personnel. These were Check's (573) and Norton's (573).

Studies of student personnel usually reveal relatively lower quality of students in the commercial curriculum. The Oakland study pictured a better situation in this respect than is common. The discovery of a lower type of pupil in the commercial department usually is regarded as distressing by the surveyor. Such a position is hard to reconcile with the commonly held aim of commercial education, that of providing such practical education for those who cannot continue their formal schooling beyond high school, and of providing some personal-use practical education for those who will continue in college.

The studies listed above indicate clearly that the surface of the latter part of the objective has hardly been scratched. As a result, the normal thing would be to find the average ability of the commercial group lower than that of the academic.

Studies of teacher personnel reveal the discouraging fact that inexperienced teachers must begin their work in small communities without supervision and with a large number of daily preparations. As teachers become more competent through experience, they move to larger school systems where supervision is better, and the number of preparations is fewer. Such a situation materially increases the burden of teacher-training institutions, and was reflected in the studies dealing with teacher-training curriculums.

Evaluation of the commercial curriculum—One large group of studies dealt with an analysis of the demands which exist for workers in the commercial occupations. Two of these (583, 591) analyzed the demands on a national scale. Studies were made of local needs in Glendale, California, by Burcham (573); in Oakland, California (589); in San Jose, California (572); in Colorado Springs, Colorado, by Horner (573) in Hartford, Connecticut (577); in Chicago, Illinois (568); in Indianapolis, Indiana, by West (610); in Greenfield, Massachusetts (585); in Holyoke, Massachusetts, by Glasheen (573); in Monmouth County, New Jersey, by Haas (610); in Newark, New Jersey (588); of Negro workers in New York City by Colbert (609); and in Huntington, West Virginia, by Zimmerman (613). Another similar study was reported by Fehr (610), in which the exact location studied was not given. Fisher (571) also studied community needs as the basis for a high-school commercial course. The needs on the junior college level were partially surveyed in Los Angeles by McAlmon (610).

A large number of follow-up studies of graduates and drop-outs were made in order to secure information for curriculum and construction purposes. These included a study in San Jose, California (567), and one by Worthington (573) in Inglewood, California; others in New Haven, Con-

necticut (587), Terre Haute, Indiana (612), Oskaloosa (600) and Sioux City (599) in Iowa; one by Scivicque (573) in New Orleans, Louisiana; by Benway (610) in Jersey City, New Jersey; and by Grant (573) in Tulsa, Oklahoma; and one made in Pittsburgh, Pennsylvania (593).

Another group of studies consisted of job analyses of activities to be performed in various business fields. Both personal-use activities and vocational activities were included. Studies of personal-use business needs included those by Morrisey (573) on home-business activities; Murphy (610) on out-of-school-use of typewriters; Church (573) on business skills and information needed by laymen; Williams and Young (607) on information needed by retail business men; and Milley (610) on business skills and information needed by the reader of a selected list of newspapers and magazines. A summary was made by Wise (573) to combine all of the results of studies of this type which have been made at Colorado State Teachers College, Greeley, Colorado. Finally, a study was made by Backman (574) to determine the extent to which high-school economics textbooks treat the subjectmatter which appears in current periodicals. Croasdale (610) and Jones (580) discussed procedures for analyzing vocational activities. In addition, actual studies were made by Eyster (610); by Pulver (610); by Wessels (606) who dealt with bookkeeping; by Lackas (610) who dealt with business law; by Unger (602) on simple clerical and selling work; by Peterson (573) on business spelling; by Thompson (573) on business English; by Kirk (584) on handwriting; by Roberts (573) on office machines; by Gaffin (610) on shorthand; and by Bader (573), Fuller, (574), Morton (574), and ten others (610) on salesmanship.

Employment tests were analyzed by Jones (581) and Schiff (573) in order to evaluate school vocational curriculums. Lewis (610) dealt with training in "attitudes and habits in business." Wanous (604) reported a "plan for vocational guidance through junior business training."

Procedures for making use of the findings of job analyses, however, are as important as making the analysis. Two studies dealt with this problem. Brewington (564) established the secretarial duties to be included in college secretarial courses. Tyrell (601) considered the same problem on the junior college level. Both of these studies are noteworthy, since they represent a needed next step in curriculum building.

All of the foregoing studies present factual material upon which to determine necessary curriculum modifications. The general findings of these studies may be summarized briefly as follows:

1. Little attention is paid to relating the supply of commercial workers being trained to the demands which exist for such workers.
2. The training which is provided is not based upon the actual demands of business.
3. There is a large body of business informations and skills which have certain personal-use values for every school student. Few students, other than those majoring in the commercial department, at the present time secure this training.

Still other phases of the evaluation of existing curriculums were studied. The opinions of students were collected by Coxe (570) and Drury (610); of teachers by the South-Western Publishing Co. (597) and by Tonne (574); and of business men by Bennett (610) and by Zimmerman (613). In relatively rare instances such opinions prove profitable, but for the most part only facts should be solicited from less competent judges.

Overlapping in the curriculum and of articulation between the various school units was studied by Shields (594), Thompson (574), and Moses (573). With the up-grading of commercial education into the upper high-school grades, articulation is less troublesome. Since, in general, commercial graduates do not continue into college, articulation is not a problem at the other end either. The matter of overlapping is a difficult one, since it may be purposive and justifiable. This point sometimes is overlooked.

Ash (574), Hand (576), Heberling (574), and Price (574), dealt with the problem of what knowledge students already possess about business and economics. The emphasis of the latter two upon concepts of economics is an important forward step.

Reference already has been made to certain studies which evaluated textbooks. These included economics by Backman (574); commercial law by Lackas (610); business spelling by Peterson (573); and clothing by Bennett (610). Studies were made of bookkeeping texts by Barnett (610), Schroeder (610), and Maguire (610); of commercial arithmetic textbooks by Berg (610); and of typewriting textbooks by Merrill (610). Criteria for rating textbooks are extremely difficult to determine authoritatively, and for that reason no one person will accept all of the ratings listed above. To a considerable extent, however, the ratings were objectively determined.

Time allotment and grade placement—Two experimental studies were made of the relative efficiency of single and double periods—in bookkeeping by Cooper (569), and in typewriting by Young (611). In both cases the experimenters concluded that the single period was preferable. Eleven studies presented data on achievement standards of large groups of students. While these studies were concerned chiefly with measurement, they have some value in determining time allotments and grade placement for the commercial subjects. These studies included a statewide survey of all commercial subjects (608); and studies of elementary business training by Odom (573); of the secretarial subjects by Malott (586); and of typewriting by Booth (610), the California State Department of Education (565), Carmichael (566), Kibby (582), Lynch (610), and Owens (609).

Miscellaneous studies—Five studies could not be classified under previous categories. The fact that for three of them digests were not secured undoubtedly accounts for their non-classification.

Coburn (610) dealt with the construction of a junior high-school course in occupational geography; Engberg (574) with the "possibilities of

integrating other subjectmatter into the teaching of typewriting"; Kuntz (573) with learning difficulties of first-term bookkeeping students; Paine (573) with an "evaluation of clerical activities performed for the schools" by high-school secretarial students; and Wells (574) with "an evaluation of the non-vocational values claimed for bookkeeping."

P. Studies in Extra-Curriculum Activities Bearing on the Curriculum

Comparisons of leaders with other students—Brown (616) compared prominent leaders in activities with lesser leaders and with the entire group of students. The average mark of the higher leaders was greater than that of the lesser leaders, and the marks of the latter were higher than those of the entire group. Girl leaders had fewer low marks than boy leaders. More leaders than non-leaders liked the more difficult subjects of study. Wetzel (638) reported an average reading ability quotient of 110 for 56 senior high-school leaders as compared with 91.5 for non-leaders. Leaders' marks averaged 2.79 (almost B) as compared with 1.92 (almost C) for the others. After comparing the marks of 201 seniors in 2 high schools in Raleigh, North Carolina, with their scores on an eight-factor leadership scale, Garrison (622) reported positive correlations of $.30 \pm .06$ and $.36 \pm .06$.

Relation of extent of participation in extra-curriculum activities to scholarship—Harris (626) found that the 10 college freshmen in a group of 330 who engaged in four kinds of activities had an average grade of 45.5, as compared with the general average of 36.6, and an average Army Alpha intelligence score of 160.5, as compared with the general average score of 157.1. The freshmen who were officers of organizations had an average grade of 42.1 and an average intelligence score of 165.4. Mehus (633) reported an average scholarship quotient of 1.96 (less than C) for 83 men students at Wittenberg College who engaged in no activities, a quotient of 2.12 (about C) for the 234 students in two or three activities, and one of 2.67 (C+) for the 35 students in five or more activities. The same tendency for scholarship to rise with increase in participation held for women students, for each of the four college classes, and also at the University of Minnesota as in Wittenberg. Probation students at Minnesota participated about as extensively as non-probation students but their percentile intelligence scores were decidedly lower. In a midwestern state teachers college Ginder (624) found a gradual increase in the median marks of 367 graduates as their participation rose from zero to nine activities. The median number of activities (four or more) participated in by degree graduates, however, was twice as great as that (1.9) of two-year graduates. Low participation in activities was found by Hayes (627) to be associated with long study hours, low marks, and low intelligence rating in the high school.

Wetzel (638) found that 75 percent of the leaders in the senior high

school of Trenton, New Jersey, were taking the academic curriculums. He failed to report what proportion of the total student body was enrolled in these curriculums. Smith (637) likewise reported a slightly greater tendency of students enrolled in academic curriculums to participate in student activities than those in technical or professional curriculums.

The 416 Phi Beta Kappans elected at Colgate University during the last three decades were not "grinds," according to Ewart (621). Sixty-eight participated in one or more sports, 29 held athletic records or captaincies, and 15 were outstanding athletes of their college generations. Positions of great leadership in the student body were won by 143, and 11 percent of the Phi Beta Kappans of the classes 1900-10 were in *Who's Who in America* as compared with 1 percent of the other graduates.

Effect of a supervisor of scholarship in a fraternity—Grant (625) reported that the national supervisor of scholarship of the Delta Tau Delta fraternity appointed in 1923 had raised the scholarship level of its chapters by 1929 to that of the average of the men in all the institutions in which the fraternity was represented. In two semesters a preceptor placed at the University of Illinois raised the chapter from next to the bottom to next to the top among fifty-five chapters.

Relation of athletics to scholarship—Jacobsen (630), summarizing seventeen previous studies, found that ten studies reported higher scholarship for athletes than non-athletes or improvement on the part of athletes during participation, four studies showed no discernible relation, and three reported negative relations. Maney (632) reported that in every semester for ten years at Transylvania College the median grades of non-football men exceeded those of football men; and for both groups of men, but not for women, during the second semester when the distraction of football was lacking the grades were higher than those of the first semester. In Ginder's study (624) the marks of athletes, whose sex was not given in the digest, excelled those of non-athletes. The 281 athletes who held scholarships at Harvard from 1923 to 1928, which are given only to men who have shown "real scholastic ability," make grades decidedly superior to those of the average undergraduate, according to Hindmarsh (629). Brammell (615) reported that the two outstanding scholarship requirements of participants in athletics in 327 high schools with athletic standards better than the average high school, are (a) passing to date in three subjects and (b) passing the preceding term in three subjects. Dudycha (619) reported that neither freshmen nor seniors in seven colleges "believe" that the athlete deserves a more prominent place or gains more from college than the "scholar" and they do not ascribe more desirable qualities to the athlete or "believe" that he has a better chance of success in life than the "scholar."

Comparison of time spent on extra-curriculum activities and curriculum activities—At Albion College, Carter (617) found that the men put in an average of forty-six hours and forty-five minutes per week on the

curriculum and four hours and fifty-one minutes on extra-curriculum activities. Fraternity men and women put in one hour and forty minutes less on the curriculum and two hours and fifty-two minutes more on activities than non-fraternity students. At Colorado State Teachers College, Whitney and Armentrout (639) found their students spending in out-of-class activities only seven and seven-tenths hours per week, or a little less than the time spent in preparation for one "four-hour" class. The method of collecting time data, however, was not fully described.

Post-school success of leaders in high-school activities—Measuring post-school success by fourteen criteria Clem and Dodge (618) concluded that leaders in high-school activities showed up better than the best scholars, and these better than a random group.

Undergraduate student reports—After examining seventeen reports by college students on the curriculum and other college problems Patton (635) concluded that the reports were valuable and influential and that the students themselves gained valuable training in the democratic study and management of social enterprises.

Correlation of the curriculum with the extra-curriculum—The objectives of both are much the same, according to Elam (620), who found that from 44 to 86 percent of the authors of 188 articles on extra-curriculum activities claimed one or another of the "seven cardinal objectives of secondary education" as their aim. Astell and Odell (614) reported, on the other hand, that very few of fifty-five science clubs in Illinois high schools had definite connections with science courses other than some such occasional instance as giving higher class marks for excellent club work or visiting industrial plants previously discussed in class. Miller (634) described several cases in which class trips to objects of interest were profitably reported in school newspapers. McCoy (631) urged that a beginning and an advanced course in journalism should be organized for the training of candidates for and holders of positions on the staffs of high-school publications. Reavis (636) reported the kind and extent of interscholastic non-athletic activities in selected secondary schools.

Inadequate training of secondary-school teachers in extra-curriculum activities—Gilchrist (623) asked 233 principals and teachers in 40 schools to check those items in the curriculum for training secondary-school teachers in which they felt their training had been inadequate. Ninety-eight checked extra-curriculum activities; no item was checked more than 109 times.

CHAPTER III

Evaluation of Courses of Study and Textbooks

Evaluation of Courses of Study and Curriculums

STRICTLY speaking, an appraisal is made in connection with every testing program and every parallel group experiment. However, in selecting studies for this review only those were included which were primarily concerned with the evaluation of a complete course of study or curriculum. Those which followed the introduction of a new learning program have been given particular emphasis.

Elementary and secondary—Repeating an earlier investigation, Harap and Bayne (658) made a critical evaluation of the output of courses of study for the years 1929-31. Using a check sheet they studied basic theory, objectives, units of work, typography, tests, and so on. It was a purely subjective evaluation and an attempt to discover trends. They found that progress was made in the organization of personnel, in recognition of progressive educational principles, in the improvement of technics, in experimentation and research, and in mechanical details.

To measure the success of a course in general science, Nettels (679) asked 100 chemistry pupils of one of the Los Angeles high schools to state the strong and weak points of the junior high-school course in science. The investigation was not rigorously organized or controlled and the results are insignificant. The investigation, however, suggests the possibility of appraisal of courses of study by means of securing pupils' reactions. Rivers (687) appraised a commercial curriculum in terms of actual applications made by graduates on the job. Another appraisal based upon pupil reactions was made by Estrop (655) who secured pupils' preferences of home economics units by means of a questionnaire. Wilson (700) made a critical evaluation of curriculum experimentation in the social studies then under way. The procedure was subjective and informal, no stated criteria being used. In general, he found that the new emphasis in the social studies is on citizenship and not on scholarship and this, apparently, he approved. Wilson and Erb's survey (701) of social studies courses in 301 junior high schools showed that American history is taught universally in grade seven or eight and seldom in grade nine. All courses in American history emphasize social and industrial life and are not organized chronologically. Geography is taught more frequently in grade nine than in any other grade. It is significant that one-fourth of the schools offer a fusion course, but the authors are not prepared to say that this represents a basic advance.

Teacher training—By converting the content of prescribed courses in education into a checklist of topics, Peik (684) submitted them to experienced alumni teachers for evaluation. In contrast with the Minnesota study, Eliassen (654) obtained reactions from 100 graduates using a

checklist of subjects instead of topics. Litherland (671) reviewed studies evaluating teacher-training curriculums from 1916 to date.

Higher education—Progress is being made in conducting objective analysis of curriculums in higher education. The principal technics used were the interview, personal visitation, questionnaire, and the study of catalogs and other published bulletins. The curriculum of land grant colleges and universities was studied by Klein (668). Reeves and others (686) made an appraisal of the courses in 35 colleges related to the Methodist Episcopal church. Blauch (642) reviewed 19 curriculum surveys made in the field of higher education. Under the auspices of the Society for the Promotion of Engineering Education (693) a board of 9 engineering educators studied the curriculums of over 100 engineering schools by means of visits and data furnished by the schools.

Appraisal of Activity Curriculums

Whether the attainment of the intangible outcomes that are claimed for the activity programs can be satisfactorily measured, or whether they should be measured at all, awaits the verdict of the future. In the meantime certain informal appraisals have been attempted. Sweeney, Barry, and Schoelkopf (695) devoted a chapter of their book, *Western Youth Meets Eastern Culture*, a report of an integrated curriculum for the seventh grade, to an appraisal of their results. Avowing the limited value of objective tests for the mastery of essentials, the authors, nevertheless, affirmed that the pupils made gains in the fundamentals. They discussed in detail the children's accomplishment in study and work habits, use of source materials, examination of data, the organization and reporting of facts, courtesy in the interchange of opinion, and in the cultivation of social attitudes. Smith (692) made an appraisal of the Berkeley, California, activity program by means of a questionnaire given to all elementary school teachers in the spring and in the fall. Activities originated most frequently in connection with the social studies. Art, language, reading, and social studies were involved in an activity more often than other subjects. Arithmetic entered into less than one-fourth of the activities. The author concluded that the teacher cannot depend upon the activity too completely for the learning of subjectmatter, although no data were presented based on tests of mastery.

Several investigators have undertaken an evaluation of activity curriculums in order to demonstrate that the latter do not sacrifice the basic conversative values. In these studies no attempt was made to appraise results other than achievement in the traditionally accepted fundamentals. Hopkins (663) questioned the validity of objective subjectmatter examinations as applied to activity curriculums. Nevertheless he proceeded to show that on the basis of the Stanford Achievement Tests, the elementary pupils of the Lincoln School had slightly higher medians in reading, arithmetic,

spelling, and composite age than those for pupils in the corresponding grades in the general school population.

Meriam (676) made a study of the essentials learned in an activity school for Mexican children located near Los Angeles. The curriculum consisted of three subjects: play, stories, and handwork. Using the Detroit Reading Tests, the Ayres Handwriting Scale, and the New Stanford Arithmetic Tests, he found that the children were close to the norm of American schools in the three R's and that the progress in months was most significant.

Based on a battery of thirteen tests, Collings (648) compared the achievement of the pupils of the University of Oklahoma Junior High School, an activity school, with that of a comparable conventional junior high school. He found that the boys in the activity school did as well or better than the boys in the conventional school. Howell, Dunn, and Stoker (664) studied the learning of fundamentals in an integrated curriculum program conducted in Roosevelt Elementary Demonstration School of Long Beach, California. Approximately one hour of the school day was devoted to drill unrelated to the major interest. Using the New Stanford Achievement Tests, they found that all classes, including the slow moving groups, were up to the standard educational age or near the standard of pupils in general.

Evaluation of Curriculums in Connection with Surveys

Lide (670) found that out of 139 schools less than 50 make a formal appraisal of new courses of study. Beauchamp (641) examined 58 courses in general science, 45 courses in biology, 27 courses in physics, and 30 courses in chemistry. In addition to the data obtained from courses of study he visited 14 cities in various parts of the United States. No systematic criteria for evaluation were used but as each chapter was developed the author made informal appraisals. He concluded that the courses were not based upon an adequate theory of education, and that there is great confusion as to learning procedures in science. Similar appraisals of an informal nature were made as other parts of the National Survey of Secondary Education by Pierce (685) in music, Hilpert (685) in art, Lide (669) in mathematics, Smith (691) in English, Eddy (653) in foreign languages, and Kimmel (667) in the social studies.

Newlon and others (681) appraised curriculum policy in Chicago in the light of certain criteria. Good and bad practice was illustrated, and certain recommendations made. The Nashville Survey (640) included an appraisal of elementary teaching procedures. A group of experienced teachers visited representative classes and analyzed the activities in the light of six main criteria. The Buffalo Survey (644) and the Holyoke Survey (694) both studied content of courses of study.

Selection of Textbooks

General procedure—The National Society for the Study of Education

(678) gave considerable impetus to the investigation of the relative value of textbooks. Jensen (665) reported that in nearly 91 percent of the cases in 172 cities, textbooks were selected on the recommendation of a committee. Maxwell (674) found that out of 111 cities, 84 approved the use of score cards in evaluating textbooks and 27 considered them of no value. Few cities have formulated original score cards. Buckingham (643) pointed out the limitations of the score card in evaluating textbooks and suggested certain essentials in scientific evaluation. Whipple (697) presented figures on cost of textbooks, discussed the arguments for and against state uniformity, and made a critical analysis of the common criteria used in evaluating textbooks. Jensen (666) studied the process of selecting textbooks from the time a manuscript is submitted for publication to its final adoption for classroom use. By questionnaire he secured information concerning the publishers' practices in selecting manuscripts. He summarized the laws controlling the selection of textbooks and presented a synthesis of thirty-eight score cards for the selection of textbooks. Williams (698) developed a rating scale for the selection of textbooks for the Oakland public schools which was actually used in the selection of new textbooks. Burr (645) advanced the proposition that textbook selection can be made into an educative experience for teachers and also presented a suggested rating scale. The procedure for the evaluation of textbooks for use in the Los Angeles public schools was described by Herriott (662). The principal bases for comparison were: subjectmatter, language, learning exercises, provision for individual differences, and format. Rutledge (689) described the procedure in selecting new books in Oakland and presented two actual scoring blanks used. Patty and Painter (683) pointed out the common deficiencies in textbook selection, reviewed the literature, suggested a formula for measuring vocabulary burden, and applied it to the high-school texts in use in the state of Indiana. They found that the vocabulary burden of the sophomore year was greater than any other year.

Language—Based upon his experience with a state textbook commission Newlun (682) developed criteria for the selection of basal readers for the elementary school. A method of scoring the books was included. Harring (659) studied the size, frequency, and usefulness of the vocabularies of 15 primers. The number of different words in each primer varied from 196 to 487. Only 34 words were common to all the books. In order to select a primer for the first-grade classes of Sharpsburg, Pennsylvania, Donovan (651) exposed the children to representative samplings of the vocabularies in 6 primers and selected the one which offered fewest difficulties. A committee of the National Council of Teachers of English (690), rejecting a weighted score sheet, proposed a list of criteria for the selection of a textbook in composition. Marye's score sheet (673) for evaluating ninth-and tenth-grade textbooks in English composition is based on an analysis of 6 modern textbooks in composition, teachers' replies to a questionnaire, and the statements of educators.

Mathematics—Waterman (646) reported an elaborate procedure followed by the California State Curriculum Commission in the selection of a series of arithmetic textbooks. Williams (699) presented a plan for evaluating junior high-school mathematics texts. Davis (650) examined 10 series of textbooks in junior high-school mathematics published since 1923. The allotments of space to arithmetic, algebra, and geometry were given. The author found a tendency toward practical mathematics. McCormick (672) made a study of 11 arithmetic textbooks for grades seven and eight and compared results with a similar study of 10 junior high-school textbooks. He found a greater proportion of algebra and geometry in the junior high-school textbooks. For the primary purpose of discovering changes made in textbooks in plane geometry since the beginning of the present century, Freeman (656) analyzed 25 textbooks in this subject. Among other results, the investigator found greater use of concrete exercises, more informal style, and simpler language. Fuller (657), with the aid of nearly 50 teachers, selected a text in plane geometry for the Los Angeles schools based on carefully developed criteria. Mensenkamp (675) proposed criteria for the evaluation of a textbook in plane geometry.

Science—Forty-five teachers under the chairmanship of Nettels (680) cooperated in the selection of a grade eight science textbook in Los Angeles. Herriott (660) described the Los Angeles procedure in selecting a textbook in advanced biology. It included vocabulary study, pupil reaction, format, and other criteria. Herriott (661) also developed a procedure for the selection of a textbook in physics. Campbell (647) found that of 290 general chemistry texts available, 3 texts represent 73 percent of the total books purchased. To discover bases for choice of the favored textbooks, a weighted score sheet of 32 items was developed and applied.

Other subjects—Dudley (652) compared 28 junior high-school American history textbooks for content, teaching aids, vocabulary, maps, and illustrations. The average score of the 28 books on the above items was found. A similar study in the field of geography was made by Walters (696). Cramer (649) compared the Rugg social studies texts with state adopted texts for difficulty of vocabulary by means of the technic developed by Vogel and Washburne. The former graded lower in every instance except one. Rose (688) analyzed the content of 21 home economics textbooks most commonly used in Minnesota and reported the space devoted to subjectmatter, teaching aids, graphic representation, and other elements. Merrill (677) formulated criteria for the evaluation of typewriting textbooks and applied it to the collection found in the business department of New York University.

CHAPTER IV

Curriculum Investigations at the Teacher-Training, College, and University Levels

PRODUCTIVE effort on the curriculum in higher education is becoming abundant. There has been a recent acceleration of objective studies. It is impossible to include all of them in this review. Many graduate theses had to be omitted because they were not available, and of the investigations treated in periodicals a selection of the best or representative ones had to be made to illustrate trends within the limits of this chapter.

Articulation of Secondary and Higher Education

Studies of entrance requirements indicate that the effort to articulate the college with the secondary-school program in terms of required entrance units is not particularly effective. Douglass (746) recommended an early abandonment of subject entrance requirements. Nelson (815) found little justification for requiring a pattern of subjects. Brammell (724) reviewed the practices of 511 institutions and concluded that the evidence tended to show the preferences for certain subjects to be fallacious. Cook (737) found that the number of courses taken in high-school history was not related to the distribution of grades in college history, and Steiner (864) discovered that students who had had high-school chemistry made better grades only in the first college chemistry course than students who had had no high-school chemistry; the latter group, however, attained higher grades in advanced courses. Lucas (804) after a comparison of college and high-school chemistry texts, concluded that time is wasted in introductory college chemistry if students have had high-school chemistry. Cederstrom (730) found that those who had had zoology in high school obtained a pronounced lead on an initial college test but the group without high-school zoology excelled in final college attainment. In economics Reichert (837) discovered only a slight positive correlation between having had high-school economics and success in a college course on economic life.

Three types of efforts to secure articulation, according to Reeves and others (836), were more or less prevalent in thirty-five institutions: (a) relief from college requirements when a subject was offered for entrance; (b) assignment to special sections in case of previous training; and (c) offering the "repair type" of survey course to fill gaps. Frisbie and Haggard (759) showed that the repetition of junior college chemistry by Joliet high-school seniors was unnecessary. After following this experiment, a committee of the North Central Association (716) recommended that students be admitted with less than the required admission units when they will take a course of college grade in place of it. Among fifty junior

colleges Lyon (806) discovered little evidence of the continuous organization of secondary and college English. Brammell (724) concluded that not much progress had been made in differentiating freshman instruction to suit previous training. The necessity for making flexible articulation provisions was presented in the University of Chicago Survey (835). Johnston (790, 791) believed that wide variations of individual achievements in the same institution in the knowledge of fields as revealed by the Sophomore Testing Program pointed strongly to the need for college placement tests or even to a coordinated program of high-school and college testing. He also stated that the general student body does not present sufficient homogeneity to justify a standardized curriculum.

The results of investigations throw the burden of proof upon those who would require specified entrance subjects and prescribe certain college subjects. They point to the need of flexible arrangements for articulating the college programs of individuals with previous high-school programs. The public junior college is in a favorable position to study these problems experimentally.

Curriculum Reports of Surveys or of Committees

A number of investigations of broad scope have been reported (825, 826, 827, 828, 835, 836, 845, 846, 847). Their findings and recommendations are largely based upon historical research, responses of fact, opinion, attitude, or judgment by groups assumed to be competent, catalog analyses, social statistics, job analyses, permanent record card analyses, some experimentation, and reviews of investigations. They touch the broader aspects of the problem such as specialization, general education, election and prescription, attitude of alumni on units of training, current instructional problems, curriculum issues, innovations, and trends. A few trends based on these reports can be mentioned:

1. An increased emphasis upon general education.
2. A trend away from intensive specialization at the undergraduate level.
3. The separation of the junior and senior college.
4. A new interest in the general education function of the junior college and in the advanced and specialized education function of the senior college.
5. The prevalence of wide diversities of practices regarding nomenclature, course content, credits required, content of majors, etc., even in fields where standardization was often assumed.
6. Interest in the effect of extreme departmentalization and of the specialization of faculties upon undergraduate instruction.
7. More student responsibility toward obtaining an education.
8. The recognition of the need for more fundamental research.

General Curriculum Reports

The Survey of Land Grant Colleges and Universities (796) presented detailed information on the arts and sciences, agriculture, engineering and home economics, commerce and business, teacher training, veterinary

medicine, extension, and graduate work. The survey of 35 colleges related to the Methodist Episcopal Church (836) presented data on course offerings, the fine arts, teacher training, special fields, professional and preprofessional work, graduate work, and curriculum improvement. The University of Chicago Survey (835) included studies of the undergraduate and high-school contacts with the fields of knowledge for 644 students, of the off-level registration of students, of the effectiveness of training for the doctorate, and of the effectiveness of remedial work in reading.

Carpenter (729) supplied an overview of curriculum offerings in the higher institutions of Missouri. Buck (728) presented the status of orientation courses in teachers colleges. Brown (726), in an investigation of extension courses, concluded that there was a critical attitude toward standards and suggested more experimentation. Martin (810) summarized the adverse criticisms of higher education in 37 publications. Leading criticisms of the curriculum were: overlapping, traditional requirements, neglect of individual differences, and lack of coherence between courses. Goodrich (763) found that a majority of 324 educators believed that a college education should be provided for all worthy persons desiring it. He ascertained some major causes of student failure and concluded that the college had not met the situation.

Testing programs reported by McConn (807) and Johnston (790, 791) are throwing some light upon the outcomes of instruction in terms of facts, principles and insights, individual differences, the articulation of college with high school, and the general growth of students.

Investigations in Specific Subject Fields

In the summaries for each field, investigations bearing upon teacher training have been included to avoid a second presentation of studies by subjects. Broader problems of teacher education are treated separately.

Agriculture—The major investigation in agriculture was made by the Survey of Land Grant Colleges and Universities (796, Vol. I). Among other findings it was discovered that the principal help in making curriculums was the study of curriculums in other colleges, but the use of occupational needs of graduates, analysis of the agricultural industry, and other investigative procedures were also used. Hamer (770) studied the education of 389 Master Farmers, and found that it was decidedly above average.

Wheeler (883) endeavored to determine an agricultural core curriculum for teachers of agriculture in Georgia through an intensive study of documents, personal visits, interviews, and questionnaires to farmers.

Commercial and business education—The Survey of Land Grant Colleges and Universities (796, Vol. II) presented the status of offering and services in business education. The report was somewhat critical, pointing out that imitation was largely the method of developing curriculums and that institutions had failed to discover the needs for higher business educa-

tion. Shields (859) analyzed the course offerings in business education in 243 junior colleges. He found terminal curriculums in business being introduced scatteringly over the country. Tyrrell (874) proposed to base an office practice course upon an evaluation of secretarial duties by combining the judgments of instructors and secretaries in a rank order list. Lawrence (800), as the result of a questionnaire to superintendents, reported that commercial teachers were weak in broader knowledge of other fields, but strong in their specialities.

English—Curriculum studies in English may be roughly classified into four groups:

1. *Errors.* Investigations involving the identification and distribution of errors were made by: Arnold (707) on capitalization, punctuation, and grammar; Barnes (711) and Davidson (743) on speech needs; Engleman and Shannon (748) on teachers' errors; and Guiler (767, 769) on capitalization and punctuation.

2. *Diagnosis and remedial teaching in reading.* Investigations involving the identification of reading deficiencies usually accompanied by an experiment in remedial instruction were made by Berry (717) at the University of Southern California; Booker (835: 146) at the University of Chicago; Robinson (842) at the University of Iowa; Smith (861) at New York University; Thompson (871) at the University of Nebraska; and Zeleny (889) at St. Cloud Teachers College. The investigations revealed wide variations in reading abilities. They usually indicated that specific remedial training is followed by specific improvement. Gray (764) summarized investigations of college reading problems. He pointed to the value of remedial reading, study guidance, and the possibility of further development of reading skill at the college level. Parr (822) concluded that few schools gave attention to poor readers.

3. *Extent of improvement.* This was studied by Hartmann (771) on spelling; by Eurich (749) on the enlargement of the vocabularies of freshmen; and by Eurich (751) on composition. Hartmann concluded that spelling progress was at a standstill in college, but Guiler (768) found that marked improvement may be expected from remedial work. Eurich concluded that short period composition classes were more or less ineffective but that special results were attained in vocabulary enlargement by direct methods.

4. *Offerings.* Characteristic offerings of institutions in English were ascertained through catalog studies, questionnaires, and permanent record card analyses by Bietry (718) on speech correction courses in junior colleges; Davidson (744) on the six main groups of English courses in 100 institutions; Peik (825, 826) and Rugg (845, 846, 847) on general curriculum offerings and subject contacts; Weaver (879) on speech offerings in 356 colleges and universities; and Voelker (877) on speech correction courses in 152 colleges and universities.

These and previous studies should tend to make certain objectives of college English instruction at least tentatively more specific. They should result in better familiarity with current practices and policies. Extreme variation and little standardization was found characteristic. Studies show the amount of high-school and college time devoted to English to be large. It is necessary that in English as in other subjects the contributions of various curriculum units to general educational culture and to the specialized education of majors be challenged and studied intensively for relative value. The problems of high-school and college contribution and articulation need much attention.

General psychology—The study of the relative value of topics in psychology represents attempts at research which needs to be made in all fields. Reymert and Arnold (839) found the frequency of the principal types of courses in 39 colleges. Fearing and Fearing (753) investigated the present status of social psychology in 153 colleges and universities. Hartmann (772), Longstaff (803), and Seward (856) ascertained what topics were of most interest to students of general psychology. Hartmann found the procedure to possess high reliability. For women students, Seward (856) found that their interest and consciousness of value would emphasize topics such as intelligence, character, and decision, which lead to personal adjustments. Longstaff (803) reported that individual differences and intelligence were the highest ranking topics and that students considered general psychology equal or better in value than average freshman or sophomore courses. Eurich (750), by retesting students found the mean score after nine months to be 73 percent of the mean at the close of the course.

Home economics—The Survey of Land Grant Colleges and Universities (796, Vol. I) and the National Survey of the Education of Teachers (825, 826, 845, 846, 847) contributed extensive information on current practices. Clark (731) ascertained the provisions made in 156 schools for education on marriage, parenthood, and family life in general. Anderson and Eliassen (703) in a summary of 25 published reports found that only 58 percent of home economics teachers taught only home economics. English and science supplied two-thirds of the teaching combinations.

Practically all other reports in the literature were evaluation studies. Beatty (714) had students evaluate problems for a course in family relationships; Blazier (722) presented the relative value of topics for home economics education courses in terms of the reactions of instructors, state supervisors, and alumni; Cone (735) canvassed school supervisors and directors of home economics on the value of a course in home needs of handicapped children. Hood (778) ascertained why students elected or did not elect home economics courses. Leighton (802) studied a group of families to locate the problems whose solution would result in a higher standard of living; Nofsker (816) made an extensive survey of educational literature to identify the statements of objectives and ranked them according to frequency of mention. Popenoe and others (829) secured the opinions of teachers in training, of master farm homemakers, and of a group of mothers, in a combination of questionnaire and interview studies, on topics for institutional training in family relationships; Sherbon and Ferris (857) used the experience and opinion of 350 married women graduates with reference to the university curriculum and problems of the home. The current interest in family and social relationships is reflected in these investigations.

Industrial arts—Patterson (823) studied observation and practice teaching courses in manual arts and teacher-training curriculums. Pawelek

(824) compared minimum requirements of institutions and of state departments of education.

Languages—The most common effort was the continuation of studies to select basic vocabularies in several languages by means of the word or idiom frequency counts. The following studies are examples: a basic vocabulary in Polish by Coleman (734); a word and idiom frequency count in French based upon 9 most widely used grammars by Fotos (758); a vocabulary in German based upon frequency counts in 12 most widely used texts by Purin (832); the vocabularies of 2 direct method French grammars by Sears (854); and a personal list from 8 primary word lists to secure 1000 active German words, by Schinnerer and Wendt (852). Very complete studies are ultimately needed to establish the most commonly used words in any language, if the experiences in the determination of English spelling lists may serve as an example.

Crider (739) presented an analysis of errors made by first-year college students of Spanish in written translations. Arnold (705) ranked 87 texts in Spanish with the help of primary word lists according to the percentage of unusual words. Kind (794) presented the content of first-and second-year German in 50 departments. Bond (723), who would make a reading knowledge and wide reading experiences the primary purpose of beginning courses, reported on the use of some 2500 open shelf volumes as materials of instruction in French and provided statistics to indicate superior achievement. Scarf and Noyer (850) had 150 teachers of Latin rank college courses for value, and also had them list difficulties of instruction. Rugg (845, 846, 847), for foreign languages in teachers colleges and Peik (825, 826), for French and Latin in universities and colleges supplied information on curriculum practices in better institutions of each type.

There is need of evaluative study of the language work taken by students, as well as of the objectives of language instruction. Languages constitute nearly 21 percent of high-school work and nearly 8 percent of college and university work for general education purposes, not considering what is taken for specialization by majors. The assumption of valuable outcomes for some or all students ought to be proved true or false if a scientific attitude on the language curriculum is to prevail.

Mathematics—Investigations in mathematics were limited to studies of disabilities, but they bear directly also upon the problems of prerequisites and articulation. Arnold (706) determined arithmetic error percentages. He concluded that where arithmetic skills are essential, remedial drills might be introduced to rehabilitate students since college use of arithmetic is limited. Eells and Fox (747) discovered that mathematical achievement favored the men on 70 of 75 items. Lueck (805) studied the arithmetical and algebraic disabilities of students pursuing first-year physics and identified 60 operations which were most difficult. Frutchey (760) concluded that all the mathematical problems in dairy technology can be solved through simple arithmetic or algebra and that the level of

service mathematics was not as high as often believed. Rugg (845, 846, 847) and Peik (825, 826) in considerable detail presented the status of certain curriculum practices in college mathematics.

The contributions and relative value of higher mathematics to the general education of most students need to be ascertained in view of the large amount of all other available content that crowds for recognition. The amount required for entrance is considerable and practically all students have taken either high-school or college mathematics.

Music—King (795) studied music courses in 67 institutions and reported the status of courses, credits, and topics. Jones (792) carried through an extensive study of 176 music teachers and supervisors in one state in which their reactions were utilized to indicate needs and relative values. The National Survey of the Education of Teachers (825, 826, 845, 846, 847) supplied a considerable amount of information in this field.

Physical education and health—The investigations were largely surveys of current curriculum practices and the evaluation of activities and units. General surveys were presented for the universities and colleges by Peik (825, 826, 828) and for teachers colleges by Rugg (845, 846, 847). Barr (712) reported a classified list of eighty-seven separate physical education activities for women. Jensen (787) presented a limited study of the organization and administration of physical education in seventeen California junior colleges. Ready (833) collected information on physical education and health education as part of all general teacher-training curriculums from a large number of institutions. She found that health examinations were universally required and that there was little opportunity for differentiating general college physical and health education requirements to suit the future professional work of teachers. Baker (710) and Jackson (786) each studied practice teaching policies in over eighty institutions. Student teaching was found universally required, but practices varied widely. Blanchard (720) endeavored to ascertain the needs of teachers in training by canvassing the public-school point of view. That most physical education majors should be prepared to teach in additional non-physical education fields was indicated at least for Indiana by Moore (813). Vogeler (878) identified the most liked activities for men. At Stephens College, Haynes (774) in an effort to discover what activities might be most worth cultivating discovered that swimming, walking, golf, hiking, and tennis were the after-graduation sports most used and enjoyed. Starr (863) found that the majority of students favored a physical education requirement and that they preferred individual to group sports. Graybeal (765) recommended more emphasis on individual sports which could be used after graduation. She believed the claims for physical education to be in advance of actual outcomes. Smith (862) ascertained from graduates the activities learned, those especially liked, and those especially unpopular; he also collected suggestions for improving the physical education program. Hughes (781), with the help of a jury of 70 specialists,

evaluated 850 statements of standards and policies. Some curriculum provisions judged essential were: the granting of credit to required physical education courses; sex education; out-of-door activities; emphasis on activities useful after graduation; variety of activities, especially of the informal type; knowledge of tests and motor achievement; and restricted and corrective physical education for those who need it.

Religion—Blauch and Russell (721) summarized requirements, evaluations, and criticisms relating to offerings on Bible and religion in thirty-five colleges. Leach (801) reported the status of courses in religion in state universities and colleges. Hartshorne, Stearns, and Uphaus (773) studied standards and trends in religious education. Interest in religion appeared to be increasing. The Bible received chief emphasis. The studies indicated uncertainty among institutions regarding the distinctive aims of courses in religion.

Science—Certain investigations in the field of science (730, 804, 835, 864) were reported elsewhere in the section on college and high-school articulation. Curtis (742) reviewed college curriculum studies in his second digest of the teaching of science. Noll (817) also made a digest of studies which pertained to the history, aims, and content of science instruction. The National Survey of the Education of Teachers (826, 845) supplied information on science offerings and curriculum practices. Bray (725) concluded that the nomenclature of biology courses in sixty-five Class A teachers colleges was chaotic.

Reed (834) made an analysis of the science preparation and teaching needs of science teachers in New Jersey. Powers (830) presented for a committee certain practices, and suggested the needs of science teachers in state teachers colleges.

Johnson (789) evaluated the courses in elementary botany as prerequisites for sequence courses and concluded that an introductory course of 9 quarter credits could not serve at the same time to meet prerequisite needs for advanced courses in various fields and be a suitable orientation course for general education purposes. That much is forgotten was indicated by the finding that a final median test score of 205 decreased to 110, 53, and 49 respectively after 3-, 15-, and 49-month intervals.

Nelson (814) attempted to determine the objectives of introductory biological science courses by examining catalogs, texts, examinations, and popular books in biology. He then tested students with a 1200 item examination. He held that practice did not meet stated objectives, that the informational objectives predominated, that contributions to general education were small, that thought questions were relatively infrequent, and that students did not master the most fundamental facts or principles.

Sampson, Barrows, and Tyler (849) by observing students, built a checklist of 92 desirable and undesirable reactions in using a microscope, and then planned suitable instruction, which proved effective. On 1500

items of chemical information Wray (887) derived indexes of relative importance in terms of questionnaire answers.

Hurd (783) supplied a valuable summary of a factual questionnaire on the training of science teachers as reported by 239 instructors. Ullrich (875) reported the results of an inquiry to administrators on the types of courses that should be introduced in science for elementary teachers.

These studies also supply leads for much needed further study in the science area on the desirability of science orientation, the standard of scholarship, proper high-school articulation, and the multiplicity of science departments. The relative value of specific science units for general education needs further study. Objectives need to be made clearer.

The social studies—During the last three years three principal types of investigation were reported: the status of specific subjects, objectives and outcomes, and the training of teachers. Bengtson (715) found geography courses offered in one-third of 154 junior colleges but only seven prescribing them; there was a favorable opinion toward a wider introduction of geography. Hutter (785) reported that 52 percent of 517 liberal arts colleges offered geography courses. Cunningham (741) studied the status of geography in teacher-training institutions. Thompson (870) found from 36 to 53 political science courses in each of 6 large universities. The objectives noted were citizenship training, government service, and training for research. Price (831) concluded that traditional trends were not giving enough emphasis to China and Japan on current problems of trade, politics, and international relations. Shields (858) analyzed the content of introductory texts in economics used in 40 liberal arts colleges, and found a heavy emphasis on value and distribution, a considerable emphasis on production, and a small emphasis on consumption. Scherf (851) made a study of social studies requirements in 50 typical junior colleges. He found foreign language and mathematics more often required of teachers and home arts majors than were any social studies. Peik (825, 826, 828) and Rugg (845, 846, 847) presented various types of data on curriculum practices in higher institutions. Contacts at high school or college in social science subjects other than history were found surprisingly small or lacking for most teachers. Miller (812) reported a notable lack of geography training beyond the elementary grades. Floyd (756) concluded that the average junior high-school teacher of social studies was not adequately prepared for the task confronting him. Kline (797) reported that among 207 institutions there was little approval of special curriculums or prevocational courses in applied social studies.

Seven studies were presented in the field of social science objectives and outcomes. Jensen (788) found 737 history objectives in 29 catalogs. The highest five were the development of character and the improvement of conduct, the appreciation of human achievement, learning the historical method, development of an understanding of institutions and movements, and the appreciation of national ideals. Salner and Remmers (848)

with the use of Harper's Test on Social Beliefs and Attitudes discovered that the subject effected a reliable increase in liberality. Kornhauser (798) found significant improvement in content, but also significant changes in attitudes as the result of a course entitled "The Economic Order." There were fewer undecided responses, fewer extreme responses, an increased liberalism, and greater liking for scientific knowledge. Wesley (882) from an experiment reported that facts were more easily acquired than concepts in social studies classes. Robbins (840) studied the articles of 42 magazines for geographic content. Hill (777) studied the status of social studies in the professional preparation of teachers.

These studies of status, objectives, and outcomes raise important issues. Rugg (845) reported that teachers college instructors of all types believed teachers should be equipped for insight into problems of contemporary life as well as of social heritage; yet the studies revealed a lack of such training as reflected either in requirements or in the programs of work completed.

The graduate curriculum—In the University of Chicago Survey (835) the relation of type of work done to type of preparation made was ascertained for 1065 doctors of philosophy. The Survey of Land Grant Colleges and Universities (796, Vol. II) included an objective survey of findings relating to graduate offerings and the master's and doctor's degree requirements. The surveys of Methodist institutions (836) also covered graduate work.

The Education of Teachers in Higher Institutions

General studies of curriculum problems—The National Survey of the Education of Teachers (825, 826, 827, 845, 846, 847) has reported thus far on such matters as: aims; the agencies involved in curriculum making; the most commonly prescribed subjects for major sequences; subject contacts of students; size of majors; number of required fields of specialization; election and prescription; distribution of students' work among subjects; attitudes of administrators, academic instructors, and education instructors on curriculum issues; and innovations. Universities and colleges and the teachers colleges and normal schools were treated separately. The methods used were catalog analyses, inquiries calling for fact and opinion, permanent record card analysis, visitation and interviews by a staff of specialists under Evenden, the Associate Director. The larger reports are to be published in 1934.

An extensive study was reported by Bachman (708) on the education and certification of elementary teachers. The report supplied objective information on differentiated curriculums, liberal cultural instruction, professional instruction, length of curriculums, instructional materials, time allotments, and other topics.

Class (732) covered the subject of prescription and election in elementary-school teacher-training curriculums in teachers colleges. Crutsinger

(740) surveyed the work of seven teachers colleges in Texas. Kyte (799) summarized the specific requirements for training elementary teachers in 39 representative teachers colleges and normal schools.

The courses in education—Twenty-one investigations on education courses were selected. Of these, 8 dealt with the group as a whole, and 13 with specific subjects. The committee report of the American Association of University Professors (885) recommended a reduction of the average education requirement to 12 semester hours, to consist primarily of educational psychology, methods, and practice teaching. The report presented facts on certification requirements, the attitudes of principals and headmasters of private schools on the value of education courses, and the reactions of 391 teachers to specific questions of their training. The National Survey of the Education of Teachers (826, 845) supplied detailed information on institutional policies, practices, and group attitudes. The Survey of Land Grant Colleges and Universities (796, Vol. II) also included data concerned with teacher education. Tubbs (873) ascertained the frequency with which education courses were offered in 35 teachers colleges. Conger (736) made a study of the content of education courses in Oklahoma institutions covering sequence, placement, prerequisites, duplication, and standardization of topics. Hunsicker (782) studied the overlapping of courses. Meriam (811) ascertained the frequency of 16 types of education courses among 815 courses offered. Hertzler (775) reported what education courses had been taken most frequently by critic teachers and which courses had helped them most. The most helpful in order were: (a) special methods, (b) general and educational psychology, (c) practice teaching, and (d) principles of teaching and general methods. Sturtevant and Strang (868) evaluated professional courses in the field of educational and social guidance of women and girls on the basis of their subsequent usefulness to those who had taken them.

Gates (761) reviewed studies on the place of educational psychology in the professional curriculum. He concluded that specialized courses were increasing, that educational psychology was given a relatively high rating by teachers, that criticisms of content reflected its academic treatment in some institutions, and that criteria of practical value, theoretical value, cultural value, and professional value be more adequately weighted and applied. Roberts (841) presented data on placement, prerequisites, and instructional procedures in 226 teacher-training institutions. Kemp (793) compiled returns from 120 supervisors and from 120 teachers taking courses, all of whom evaluated topics in educational psychology. Topics which bore a relationship to teaching skill and insights ranked highest. Ruch (843) reviewed studies of the value of educational psychology and its place in certification requirements. General introductory courses in education were studied by MacDonald (808) and Reinhardt (838). Park (821) studied institutional practices and purposes in educational measurement and analyzed the topical content of 10 texts in educational measure-

ments. Osborn (818) reported that the title, "Principles of Teaching" had little constant meaning. Selberg (855) used a combination of observations, activity lists, and interviews to discover needed content for courses in the supervision of general science to be based upon teachers' problems and difficulties. Swan (869) had teachers indicate the frequency of use, difficulty, importance, and need of preservice training on typical activities in primary reading as a basis for determining content in primary reading methods.

The most thoroughly checked course in education was student teaching. Baugher (713) presented 40 items of content in order of importance, as evaluated by a jury of directors of practice teaching in liberal arts colleges. Flowers (755) made a specific investigation of student teaching courses for secondary teachers in teachers colleges and presented for 102 activities, the percentage of institutions including each, as well as the average estimated ranks of each according to directors on a five-point scale of evaluation. Marshall (809) in an experiment evaluated 3 plans or types of student teaching. The longer period of graded practice and observation was found superior to shorter periods. Yeomans and Woolbert (888) reported an investigation of student teaching practices in 53 standard colleges.

Clement and Boe (733) found a remarkable increase in the number of courses in secondary-school supervision offered in colleges and universities. The courses were reported as very general in nature. Allen (702) reported an increase also in specialized curriculums and courses for elementary supervision in 266 institutions.

Some general facts regarding education courses are being established by recurring findings: their increase in number; the variation in institutional and certification requirements; the unstandardized title terminology; the value of educational psychology, methods courses, and practice teaching; the gradual attainment of practically universal requirement of student teaching; the recurring treatment of similar topics in different courses, which may or may not always be duplication; the decline of history of education as a principal subject; the continuing development of professional education in liberal arts colleges, about 45 percent of whose graduates are preparing to teach; and the failure to supervise student teaching adequately in many institutions.

The professional treatment of subjectmatter—Hurd (784) sent to science instructors identified with the training of teachers a list of fifty-two tentative criteria for distinguishing professionalized courses in science from non-professional courses and compiled the returns in order of estimated importance. Billig (719) produced an outline of core content for a professional course in science for elementary teachers through an attempt to discover the themes in thirteen books in science, twelve elementary curriculum outlines, and eight science books for lay readers.

Teaching subject combinations—There is increasing evidence that most

secondary teachers will not teach entirely in a major field of preparation, that a large majority will teach in two or more fields, and that teaching combinations are not always logical. Teaching subject combinations have been studied by Anderson (704) on major and minor subjects taught by 1563 graduates; Devricks (745) on teaching combinations in Indiana; Horton (779) on physical education combinations in Illinois; Pannell (820) on subject combinations in Alabama; Peik (826:33) on the four highest combinations of 52,768 teachers as compiled by Gamble; and Wilson (886) on science teacher combinations in Michigan. Street (867) supplied a compilation of suitable subject combinations with physical education according to the judgment of 46 state directors and professors of physical education. Whitney and Milholland (884) studied the relationship of the teachers college preparation to subjects taught after graduation for a 50 percent sampling of 1250 graduates.

Preparation of elementary-school teachers—Stratemeyer (865) attempted to select desirable units and to organize them for a teacher preparing curriculum by having teachers, judged most capable, react to a checklist of major activities in terms of actual practice, desired practice, and of desired preservice training. She concluded that teachers' difficulties are in the direction of developing skills rather than with concepts or insights, and pointed to a need of a functional program of preservice education. Coxe and Cornell (738) also concluded that elementary teachers did not have so much difficulty with subjectmatter as with specific teaching activities. Fitch (754) had elementary training supervisors check 422 activities for frequency of use, need for training, and general value. Brueckner, White, and Dickeman (727) had students and supervisors check a list of teaching activities in arithmetic for importance and difficulty to ascertain training and supervisory needs.

Preparation of secondary-school teachers—Gilchrist (762) sought to determine the outstanding weak spots in the professional education of secondary teachers and principals. Umstattd and Johnson (876) listed the difficulties of beginning teachers. Hertzler (775) had critic teachers check duties actually performed and those which they considered ought to be performed. Hertzler (776) also studied the preparation and experience of critic teachers of the secondary schools of Indiana.

Preparation of rural-school teachers—Rudow (844) had rural teachers react to the difficulty, and also to the need of preservice training on frequently occurring problems. Weeks (881) also had rural teachers evaluate problems for difficulty. In another study Weeks (880) analyzed the pattern of course requirements prevalent in one- and two-year curriculums in 58 teachers colleges. Tostlebe (872) studied the adequacy of training of rural teachers in one institution by having 135 typical rural activities checked by alumni. Sholes (860) gave standardized achievement tests in common branches to a group of 117 rural teachers in one county. The

need of rehabilitation courses in training and wide individual differences in common branches were indicated.

Preparation of junior high-school teachers—Grinnell (766) showed that 16 percent of the liberal arts colleges, 72 percent of the universities, and 80 percent of teachers colleges made some provision for specialized education of prospective junior high-school teachers. Foster (757) ascertained from 90 superintendents, principals, and teachers what they thought the education of junior high-school teachers should be.

The graduate curriculum in teacher education—Hughes and Melby (780), from an evaluation by college instructors of five types of graduate curriculums for teachers of social studies, found that the orientation of those who made judgments influenced these judgments. The programs which were evaluated differed as to amount of subjectmatter work, professional education courses, and the thesis requirement. Stratton (866) studied the problems of 1200 students in a graduate school of education by several methods. They ranged from "getting desired courses" which was first, to "how heavy a schedule to carry" which ranked eleventh. In the University of Chicago Survey (835) certain elements of the preparation of doctors of philosophy who were in the teaching profession were evaluated. It was discovered that 48 percent of doctors of philosophy had had no formal training in education for any level. No suggestion was made so often as the one "that more attention be given to problems of teaching." The number of suggestions concerned with "problems of teaching" constituted nearly one-fourth of all suggestions made. Palmer (819) located twenty-four universities, two teachers colleges, and one state college that offered summer courses in college administration and instruction for in-service training of college instructors. The optimum content and organization of the fifth year of college work for teachers and the value of specific professional training for teaching in higher education are two problems deserving much further investigation.

State control of teacher-training curriculums—Several analyses of state certification requirements have been made by Schleier (853) on regulations governing the education of teachers of the handicapped; Bachman (708, 709) on the education of elementary teachers; and Falk (752) on minimum requirements in semester hours required in education of prospective secondary teachers. A committee of the American Association of University Professors (885) analyzed both education and subjectmatter prescriptions. State prescriptions were found to vary widely and to control professional education much more specifically than they did subjectmatter preparation.

Medicine, Engineering, and Law

For lack of space a rather extensive curriculum research in the fields of medicine and engineering and a very limited number of studies in legal education have not been reviewed.

Conclusions

A review of the research related to the curriculum in higher institutions leads to several general conclusions:

1. Institutions of higher education have made a beginning in the objective study of curriculum problems. Most studies are concerned with the externals of status quo and not so much with the functional value and relative contributions of units of content.

2. The best contributions have probably been made by surveys of broad scope or by intensive studies of narrower areas. The fragmentary or limited study which is lacking in completeness should, if possible, be replaced by more of the extensive or intensive types of investigation.

3. The methods of curriculum research most used in higher education are catalog studies, the canvass of facts or of opinions, the canvass of errors or difficulties, the use of social statistics, student record card analysis, and least of all, experimentation, particularly of the carefully controlled type.

4. In most, but not in all fields, available investigations can provide a fair insight into the current status of offerings.

5. There is much variation in all fields on practices governing curriculum patterns. This applies to such matters as the specifically prescribed course content of general education, the amount of specialization in major or minor sequences or the courses required in such sequences, or the extent of election and prescription. There is, however, little or no evidence upon which to base any standardization, if standardization is ever desirable, or possible.

6. The problems of high-school and college articulation should be pressed toward experimental solutions. The problem of long range sequences versus unit courses in either secondary or higher education have not received the attention they deserve.

7. The aims and outcomes of units, courses, and curriculums are not well defined and are not yet sufficiently the objectives of research.

8. Vocational departments are apparently more alive to a functional approach to the curriculum than are the older arts and science departments. There is, no doubt, more satisfaction and complacency about current offerings, without the check of research, than should prevail.

BIBLIOGRAPHY ON THE CURRICULUM

Chapter II. Curriculum Investigations at the Elementary- and Secondary-School Levels

Reading

1. BAMBERGER, FLORENCE E., and BROENING, ANGELA M. *A Guide to Children's Literature.* Baltimore: Johns Hopkins Press, 1931. 113 p.
2. BEINHART, FRIEDA. "My Leisure Time." *Training School Bulletin* (*Vineland, N. J.*) 27: 161-66; February, 1931.
3. BONAR, HUGH S. "Systematic versus Incidental Training in Reading." *Elementary English Review* 10: 90-94, 112; April, 1933.
4. CAIN, WILLIAM R., and BROWN, FRANCIS J. "An Evaluation of the Outside Reading Interests of a Group of Senior High School Pupils." *Journal of Educational Sociology* 5: 437-42; March, 1932.
5. COOPER, RUBY. "Overlapping of Content in Elementary Readers." *Elementary School Journal* 32: 542-45; March, 1932.
6. DANFORTH, MARIE LUSK. "Purposes in the Selection and Arrangement of Material in Supplementary Readers." *Elementary School Journal* 33: 427-33; February, 1933.
7. DONOVAN, JOHN J. "Selecting Primers for Non-English Speaking Children." *Elementary School Journal* 32: 30-33; September, 1931.
8. DOWELL, PATTIE S., and GARRISON, K. C. "A Study of Reading Interests of Third Grade Subjects." *Peabody Journal of Education* 8: 202-6; January, 1931.
9. GARRISON, S. C., and HACKWORTH, LECTOR. "A Comparison of Ten Book Lists for Children's Reading." *Peabody Journal of Education* 9: 102-11; September, 1931.
10. GATES, ARTHUR I. *Interest and Ability in Reading.* New York: Macmillan Co., 1930. 264 p.
11. GATES, ARTHUR I.; PEARDON, CELESTE C.; and SARTORIUS, INA C. "Studies of Children's Interests in Reading." *Elementary School Journal* 31: 656-70; May, 1931.
12. GOODRICH, T. V. "Is the Workbook a Necessity or a Luxury?" *School Executives Magazine* 50: 359-61, 396; April, 1931.
13. GUNDERSON, AGNES G. "Geographical Materials Contained in Readers for the First Three Grades." *Elementary School Journal* 33: 608-15; April, 1933.
14. HARRING, SYDNEY. "What Primer Shall I Use Next?" *Elementary School Journal* 32: 207-13; November, 1931.
15. HOLMAN, JULIUS W. "A Study in Time Allotment in the Elementary School Subjects in Missouri." *School and Community* 17: 161-65; April, 1931.
16. HUBER, MIRIAM BLANTON; BRUNER, H. B.; and CURRY, C. M. *Children's Interests in Poetry.* Chicago: Rand, McNally and Co., 1927. 233 p.
17. IDE, ALICE M., and OBERG, WALDA. "The Content of Present Day School Readers as Compared with Children's Interests and Reading Objectives." *Elementary English Review* 8: 64-68; March, 1931.
18. KEALY, SISTER MARY EUGENIA. *An Empirical Study of Children's Interests in Spiritual Reading.* Catholic University of America, Educational Research Bulletin, Vol. 5, No. 4. Washington, D. C.: Catholic Education Press, 1930. 70 p.
19. LACEY, JOY MUCHMORE. "What Effect Has the Emphasis on Social Studies Had on the Content of Readers?" *Educational Method* 10: 532-37; June, 1931.
20. MORPHETT, MABEL V., and WASHBURNE, CARLETON W. "When Should Children Begin to Read?" *Elementary School Journal* 31: 496-503; March, 1931.
21. RAYBOLD, EMMA. "Reading Readiness in Children Entering First Grade." *Third Yearbook of the Psychology and Educational Research Division.* School Publication No. 185. Los Angeles, Calif.: Los Angeles City School District, 1929. p. 98-101.
22. RINEHART, ANNE CAMPBELL. *What Pittsburgh Junior High School Pupils Read.* School Betterment Studies, Vol. 3, No. 1. Pittsburgh, Pa.: Henry C. Frick Educational Commission, 1931. 83 p.

23. Robinson, R. R. *Two Centuries of Change in the Content of School Readers.* Contributions to Education, No. 59. Nashville, Tenn.: George Peabody College for Teachers, 1930. 116 p.
24. Shuttleworth, Frank K. *A Critical Study of Two Lists of Best Books for Children.* Genetic Psychology Monographs, Vol. 11, No. 4. Worcester, Mass.: Clark University Press, 1932. p. 247-319.
25. Smith, Nila Banton. "Successive Emphases in American Reading Instruction." *Teachers College Record* 34: 188-203; December, 1932.
26. Staats, Pauline. "A Vocabulary Study of First Grade Poetry." *Childhood Education* 9: 127-28; December, 1932.
27. Stone, Clarence R. "Grading Reading Selections on the Basis of Interest." *Educational Method* 10: 225-30; January, 1931.
28. Witty, Paul A., and Lehman, Harvey C. "A Study of the Reading and Reading Interests of Gifted Children." *Pedagogical Seminary and Journal of Genetic Psychology* 40: 473-85; June, 1932.

Handwriting

29. Arnold, Esther Whitacre. "The Transition from Manuscript to Cursive Writing." *Elementary School Journal* 33: 616-20; April, 1933.
30. Crider, Blake. "The Adaptability of Pupils to Manuscript Writing." *Elementary School Journal* 32: 617-22; April, 1932.
31. Gates, Arthur I., and Brown, Helen. "Experimental Comparisons of Print-Script and Cursive Writing." *Journal of Educational Research* 20: 1-14; June, 1929.
32. Gray, William Henry. "An Experimental Comparison of the Movements in Manuscript Writing and Cursive Writing." *Journal of Educational Psychology* 21: 259-72; April, 1930.
33. Harap, Henry. "Making a Handwriting Course of Study." *Educational Method* 11: 202-9; January, 1932.
34. James, H. W. "The Effect of Handwriting on Grading." *English Journal* 16: 181-85; March, 1927.
35. Keim, S. L. "Present Status and Significance of Manuscript Writing." *Journal of Educational Research* 24: 115-26; September, 1931.
36. Long, H. H., and Mayer, W. C. "Printing versus Cursive Writing in Beginning Reading Instruction." *Journal of Educational Research* 24: 350-55; December, 1931.
37. Shepherd, Everett M. "The Effect of the Quality of Penmanship on Grades." *Journal of Educational Research* 19: 102-5; February, 1929.
38. Turner, Olive G. "The Comparative Legibility and Speed of Manuscript and Cursive Handwriting." *Elementary School Journal* 30: 780-86; June, 1930.
39. Voorhis, Thelma G. *The Relative Merits of Cursive and Manuscript Writing.* New York: Teachers College, Columbia University, 1931. 58 p.
40. Wahlert, Jennie. "Manuscript Writing." *Childhood Education* 8: 517-19; June, 1932.

Arithmetic

41. American Council on Education, Committee on the Materials of Instruction. *Achievements of Civilization, Nos. 2-5.* Chicago: the Committee (5835 Kimbark Ave.), 1932-33. 4 vols.
42. Barnes, Emily A., and Young, Bess M. *A Unit of Work: Children and Architecture.* New York: Teachers College, Columbia University, 1932. 353 p.
43. Brownell, W. A., and Stretch, L. B. *The Effect of Unfamiliar Settings on Problem-Solving.* Duke University Research Studies in Education, No. 1. Durham, N. C.: Duke University Press, 1931. 86 p.
44. Brueckner, Leo J.; White, L. D.; and Dickeman, Fred. *A Curriculum Study of Teacher Training in Arithmetic.* Minneapolis: University of Minnesota Press, 1932. 28 p.
45. Brueckner, Leo J., and Lauman, G. S. "The Measurement of Accuracy of Judgments of the Difficulty of Arithmetic Problems." *Educational Method* 12: 338-45; March, 1933.

46. Brueckner, Leo J. "Social Problems as a Basis for a Vitalized Arithmetic Curriculum." *Journal of Experimental Education* 1: 320-23; June, 1933.
47. Brueckner, Leo J. "Some Major Themes Underlying Instruction." *Journal of the National Education Association* 21: 47-49; February, 1932.
48. Brueckner, Leo J., and Irving, James A. "A Technique for Comparing the Difficulty of Problems in Textbooks in Arithmetic." *Elementary School Journal* 33: 283-85; December, 1932.
49. Brueckner, Leo J. "Vitalizing Instruction." *Journal of the National Education Association* 20: 337-39; December, 1931.
50. Buswell, G. T., and John, Lenore. *The Vocabulary of Arithmetic.* Supplementary Educational Monographs, No. 38. Chicago: University of Chicago Press, 1931. 146 p.
51. Caldwell, A. G. *Arithmetic Activities.* Cleveland: Board of Education, 1931. 213 p.
52. California State Department of Education. *Evaluation of Arithmetic Textbooks.* Bulletin No. 19. Sacramento, Calif.: the Department, 1932. 28 p.
53. Gillett, H. O. "The Placement of Arithmetic Topics." *Journal of the National Education Association* 20: 199-200; June, 1931.
54. Grossnickle, F. E. "Classification of the Estimations in Two Methods of Finding the Quotient in Long Division." *Elementary School Journal* 32: 595-604; April, 1932.
55. Grossnickle, F. E. "Cues in Division Problems Given in Nine Representative Textbooks in Arithmetic." *Elementary School Journal* 33: 452-61; February, 1933.
56. Grossnickle, F. E. "How to Estimate the Quotient Figure in Long Division." *Elementary School Journal* 32: 299-306; December, 1931.
57. Grossnickle, F. E. "Practice Material in the Estimation of the Quotient in Long Division Found in Current Textbooks." *Elementary School Journal* 33: 130-31; October, 1932.
58. Hockett, John A. *A Determination of the Major Social Problems of American Life.* Contributions to Education, No. 281. New York: Teachers College, Columbia University, 1927. 101 p.
59. Hughes, A. W. *A Unit of Work: Carrying the Mail, a Second Grade's Experiences.* New York: Teachers College, Columbia University, 1933. 253 p.
60. Lockerly, Florence. *Banking.* Teachers' Lesson Unit Series, No. 28. New York: Teachers College, Columbia University. 21 p.
61. MacLatchy, J. H. "Another Measure of the Difficulty of Addition Combinations." *Educational Research Bulletin (Ohio State University)* 12: 57-61; March 8, 1933.
62. Neulen, Leon N. *Problem Solving in Arithmetic.* Contributions to Education, No. 483. New York: Teachers College, Columbia University, 1931. 87 p.
63. Olander, H. T., and Sharp, E. P. "Long Division versus Short Division." *Journal of Educational Research* 26: 6-11; September, 1932.
64. Overman, James R. *An Experimental Study of Certain Factors Affecting Transfer of Training in Arithmetic.* Educational Psychology Monographs, No. 29. Baltimore: Warwick and York, 1931. 235 p.
65. Pressey, L. C., and Moore, W. S. "Growth of Mathematical Vocabulary from the Third Grade Through High School." *School Review* 40: 449-54; June 1932.
66. South Dakota State Board of Education. *State Course of Study.* Pierre, S. D.: the Board.
67. Storm, H. C. "Grade Placement in Arithmetic." *Illinois Teacher* 20: 113-14; December, 1931.
68. Washburne, Carleton W., and others. "The Grade Placement of Arithmetic Topics: a Committee of Seven Investigation." *Report of the Society's Committee on Arithmetic.* Twenty-ninth Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1930. p. 641-70.
69. Washburne, Carleton W. "Mental Age and the Arithmetic Curriculum." *Journal of Educational Research* 23: 210-31; March, 1931.
70. Wilson, G. M. "New Standards in Arithmetic." *Journal of Educational Research* 22: 351-60; December, 1930.

71. WOODY, CLIFFORD. "Achievement in Counting by Children in the Primary Grades." *Childhood Education* 7: 339-45; March, 1931.
72. WOODY, CLIFFORD. "Arithmetical Backgrounds of Young Children." *Journal of Educational Research* 24: 188-201; October, 1931.
73. WOODY, CLIFFORD. "The Nature and Amount of Arithmetic in Types and Reading Material for the Elementary Schools." *Educational Outlook* 6: 199-217; May, 1932.

Spelling

74. ANDERSON, H. A., and TRAXLER, A. E. "Group Corrective Spelling in the Junior High School: an Experiment." *School Review* 41: 595-603; October, 1933.
75. BREED, FREDERICK S. "Spelling, Handwriting, Social Studies, Character Education, Geography and Social Science." *Review of Educational Research* 1: 276-93, 314-20; October, 1931.
76. BRUECKNER, L. J., and MELBY, E. O. *Diagnostic and Remedial Teaching.* Boston: Houghton Mifflin Co., 1931. Chapter 10, "Diagnostic and Remedial Teaching in Spelling," p. 380-408.
77. CARROLL, HERBERT A. "The Effect of Intelligence Upon Phonic Generalization." *Journal of Applied Psychology* 15: 168-81; April, 1931.
78. COLEMAN, W. H. *A Critique of Spelling Vocabulary Investigation.* Education Series, No. 12. Greeley, Colo.: Colorado State Teachers College, 1931. 119 p.
79. CONNELLY, ELIZABETH A. "An Experiment in Spelling." *English Journal (H. S. Ed.)* 21: 666-69; October, 1932.
80. COOK, WALTER W. *The Measurement of General Spelling Ability Involving Controlled Comparisons between Techniques.* University of Iowa Studies in Education, Vol. 6, No. 6. Iowa City: the University, 1932. 112 p.
81. COVERDALE, R. A. "Interscholastic Contests Improve Spelling." *Sierra Educational News* 28: 42, 44; May, 1932.
82. FITZGERALD, JAMES A. "Words Misspelled Most Frequently by Children of the Fourth, Fifth, and Sixth Grade Levels in Life Outside the School." *Journal of Educational Research* 26: 213-18; November, 1932.
83. FORAN, THOMAS G. "Amount of Spelling Instruction." *Catholic Educational Review* 29: 100-11; February, 1931.
84. FORAN, THOMAS G., and MARY CARMELA, SISTER, compilers. "An Annotated Bibliography of Studies of Spelling: Supplement for 1930." *Catholic Educational Review* 29: 226-39; April, 1931.
85. FORAN, THOMAS G. "General Methods of Teaching Spelling." *Catholic Educational Review* 29: 156-72; March, 1931.
86. FORAN, THOMAS G. "Grading and Grouping Words in Spelling." *Catholic Educational Review* 29: 32-48; January, 1931.
87. FORAN, THOMAS G. "Presentation of Words in Spelling." *Catholic Educational Review* 29: 283-301; May, 1931.
88. FORAN, THOMAS G. "Spelling Vocabulary." *Catholic Educational Review* 28: 587-600; December, 1930.
89. GARRISON, S. C., and HEARD, M. T. "An Experimental Study of the Value of Phonetics." *Peabody Journal of Education* 9: 9-14; July, 1931.
90. GARVER, F. M. "Principles of Method Revealed by an Analysis of a Spelling Pre-Test." *Educational Outlook* 5: 147-53; March, 1931.
91. GATES, A. I. "An Experimental Comparison of the Study-Test and the Test-Study Methods of Spelling." *Journal of Educational Psychology* 22: 1-19; January, 1931.
92. GATES, A. I., and BENNETT, C. C. "Two Tests versus Three Tests Weekly in Teaching Spelling." *Elementary School Journal* 34: 44-49; September, 1933.
93. GILBERT, LUTHER C. "Experimental Investigation of a Flash-Card Method of Teaching Spelling." *Elementary School Journal* 32: 337-51; January, 1932.
94. GILBERT, LUTHER C. *Experimental Investigation of Eye Movements in Learning to Spell Words. Psychological Monographs,* Vol. 43, No. 3, Whole No. 196. Princeton, N. J.: Psychological Review Co., 1932. 81 p.
95. GUILER, WALTER S. "Improving College Freshmen in Spelling." *Journal of Educational Research* 24: 209-15; October, 1931.

96. Hartmann, George W. "The Relative Influence of Visual and Auditory Factors in Spelling Ability." *Journal of Educational Psychology* 22: 691-99; December, 1931.
97. Kelley, T. L. "A Communication Concerning the Difficulty of Achievement Test Items." *Journal of Educational Research* 22: 309-14; November, 1930.
98. King, Luella M. *Learning and Applying Spelling Rules in Grades Three to Eight.* Contributions to Education, No. 517. New York: Teachers College, Columbia University, 1932. 80 p.
99. Kramer, Grace A. "What Words Do Adults Misspell?" *Baltimore Bulletin of Education* 10: 190-91; May, 1932.
100. Lesch, E. "Biem Spontanschreiben auftretende orthographische Fehler nach Zahl, Art und Ursache ihrer Entstehung." Hilfsschule XXIV (1931), H. 5. (Abstracted by P. Ranschburg in *Psychological Abstracts* 6: 184; April, 1932.)
101. Ley, A. "Sur la dysorthographie d'evolution." *J. de Neur. et de Psychiat.* 30: 823-26; 1930. (Abstracted by H. Syz in *Psychological Abstracts* 6: 36; January, 1932.)
102. Mendenhall, James E. "An Analysis of Spelling Errors: A Study of Factors Associated with Word Difficulty." *Teachers College Record* 32: 282-83; December, 1930.
103. Mendenhall, James E. "The Characteristics of Spelling Errors." *Journal of Educational Psychology* 21: 648-56; December, 1930.
104. Miller, Helen; Courtis, S. A.; and Watters, Garnette. *Creative Teaching in the Field of Spelling.* Des Moines, Iowa: Wallace Publishing Co., 1931. Section 5, "Tests and Standards," p. 46-74.
105. Phillips, D. P. "Comparison of the Two-Response and Dictated Recall Types of Spelling Tests." *Journal of Educational Research* 23: 17-24; January, 1931.
106. Prehm, Hazel. "Developing a Spelling Morale." *Elementary English Review* 8: 10-13; January, 1931.
107. Roback, A. A. "Writing Slips and Personality." *Character and Personality* 1: 137-46; December, 1932.
108. Sartorious, Ina C. *Generalization in Spelling.* Contributions to Education, No. 472. New York: Teachers College, Columbia University, 1931. 65 p.
109. Selzer, Charles A. *Lateral Dominance and Visual Fusion; Their Application to Difficulties in Reading, Writing, Spelling and Speech.* Harvard Monograph in Education, No. 12. Cambridge, Mass.: Harvard University Press, 1933. 119 p.
110. Thompson, Robert S. *Effectiveness of Modern Spelling Instruction.* Contributions to Education, No. 436. New York: Teachers College, Columbia University, 1930. 81 p. (Summarized in *Teachers College Record* 32: 284-86; December, 1930.)
111. Thurstone, Thelma G. "The Difficulty of a Test and Its Diagnostic Value." *Journal of Educational Psychology* 23: 335-43; May, 1932.
112. Ulrich, C. F. "Interpretation of a Case of Miswriting." *Psychoanalytic Review* 19: 200-2; April, 1932.
113. Wickey, Rose, and Lambader, May B. *The Teaching of Spelling.* St. Louis: Webster Publishing Co., 1932. 96 p.
114. Williamson, Edmund G. "The Relation of Learning to Spelling Ability." *Journal of Educational Psychology* 24: 257-65; April, 1933.
115. Wilson, G. M. "A Reply to Dr. Kelley's Communication." *Journal of Educational Research* 22: 315-16; November, 1930.
116. Zyve, Claire. *An Experimental Study of Spelling Methods.* Contributions to Education, No. 446. New York: Teachers College, Columbia University, 1931. 86 p.
117. Zyve, Claire. "Spelling." *Review of Educational Research* 1: 341-44, 407-9; December, 1931.

English Language and Grammar

118. Achilles, P. S. "Nation-Wide Surveys in Reading, English Usage, and Vocabulary Launched by the Psychological Corporation." *School and Society* 34: 233-35; August 15, 1931.
119. Alvey, Edward, Jr. "Individualizing in High-School English." *English Journal (H. S. Ed.)* 20: 145-50; February, 1931.

120. Alvey, Edward, Jr. "Organizing Units around Functional Centers." *English Journal* 22: 119-27; February, 1933.
121. Bardwell, Richard. "The New Emphasis in Language-Teaching." *Elementary School Journal* 34: 95-105; October, 1933.
122. Barnes, Walter. "Language as Behavior." *Elementary English Review* 7: 241-45; December, 1930. 8: 14-17, 24, 44-46, January-February, 1931.
123. Brown, Carroll Edgar. "Foreign Language Errors of Chicago Children." *English Journal* 20: 469-74; June, 1931.
124. Cope, Pauline. "Developing a Usage Conscience through Cooperation." *English Journal* (*H. S. Ed.*) 22: 399-405; May, 1933.
125. Denver Public Schools. *English, Senior High School, Grades Ten, Eleven, and Twelve.* Course of Study Monograph, No. 10. 2d rev. ed. Denver, Colo.: Denver Public Schools, 1931. 213 p.
126. Fowler, Burton P. "Relationship of English to a Unified Secondary-School Curriculum." *English Journal* (*H. S. Ed.*) 22: 552-55; September, 1933.
127. Goodykoontz, Bess. "Some Factors Affecting the Elementary English Curriculum." *Elementary English Review* 8: 3-6; January, 1931.
128. Greene, Harry A. "Research in Elementary Language." *Elementary English Review* 10: 59-66, 101-7, 126-31; March-May, 1933. "Discussion." 10: 130-34, 155-56, 177-80; May, June, and September, 1933.
129. Greene, Harry A. "Researches in Contemporary Usage." *English Journal* (*Coll. Ed.*) 20: 316-20; April, 1931.
130. Guiler, Walter Scribner. "Analysis of Capitalization Errors." *English Journal* 20: 21-26; January, 1931.
131. Guiler, Walter Scribner. "Survey of English Usage of Elementary School Pupils in Ohio." *Elementary English Review* 9: 169-71, 182, 213-16; September-October, 1932.
132. Hatfield, W. Wilbur. "Social Changes and English." *English Journal* 22: 536-41; September, 1933.
133. Hinchman, Florence M. "Teaching the Dull Freshman." *English Journal* (*H. S. Ed.*) 22: 830-34; December, 1933.
134. Kennedy, Arthur G. "The Study of Current English." *English Journal* (*Coll. Ed.*) 22: 486-96; June, 1933.
135. Klopp, W. J. "Grammar by Rule or Practice." *English Journal* (*H. S. Ed.*) 20: 155-57; February, 1931.
136. Koos, Leonard V. "The National Survey of Secondary Education; Its Implications for Teachers of English." *English Journal* (*H. S. Ed.*) 22: 303-13; April, 1933.
137. Leonard, J. Paul. "Functional Grammar: What and Where?" *English Journal* (*H. S. Ed.*) 22: 729-35; November, 1933.
138. Leonard, S. A. *Current English Usage.* English Monographs, No. 1. Chicago: National Council of Teachers of English, 1932. 232 p.
139. Lyman, R. L. *The Enrichment of the English Curriculum.* Supplementary Educational Monographs, No. 39. Chicago: University of Chicago Press, 1932. 251 p.
140. Mabie, Ethel. "Language Ability and Personality Adjustment." *Elementary English Review* 10: 165-68; September, 1933.
141. New York University. *Studies in Current Colloquial Usage.* Unpublished material prepared by graduate students under the direction of Prof. Walter Barnes, 1933.
142. Pollack, Rebecca L. "Disappearance of Departmental Lines in the New Type of High School." *English Journal* (*H. S. Ed.*) 22: 648-53; October, 1933.
143. Pooley, Robert C. "Eighteenth Century Ghosts in Twentieth Century Textbooks." *Elementary English Review* 10: 71-73, 78; March, 1933.
144. Pooley, Robert C. *Grammar and Usage in Textbooks on English.* Bureau of Educational Research, Bulletin No. 14. Madison, Wis.: University of Wisconsin, 1933. 172 p.
145. Pressey, S. L., and Campbell, Pera. "The Causes of Children's Errors in Capitalization." *English Journal* 22: 197-201; March, 1933.
146. Pulliam, Roscoe. "Should Formal Grammar Be Discarded?" *English Journal* (*H. S. Ed.*) 20: 654-61; October, 1931.
147. Smith, Dora V. *Instruction in English.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 20. Washington, D. C.: Government Printing Office, 1933. 89 p.

148. SYMONDS, PERCIVAL M. "Needed Research in the Teaching of English." *English Journal* 22: 447-56; June, 1933.
149. THOMAS, CHARLES SWAIN. "Language and Thinking in the Secondary School." *English Journal* 22: 277-83; April, 1933.
150. TRABUE, M. R. "A Council Program of Scientific Guidance in Elementary School Composition." *Elementary English Review* 9: 12-16, 19; January, 1932.
151. TRESSLER, J. C. "What Conventions Shall We Teach? How?" *English Journal* 21: 200-4; March, 1932.
152. WISCONSIN ENGLISH TEACHERS' ASSOCIATION. *Report on English Usage as a Teaching Problem.* Milwaukee, Wis.: the Association (George E. Teter, treas., Milwaukee Teachers College), 1933. 64 p.

Social Studies

153. ADAMS, MARY A. "City-Wide Experimentation in the Intermediate Curriculum Program in Geography and History." *Baltimore Bulletin of Education* 9: 172-77; April, 1931.
154. AITCHISON, ALISON E. " 'Torrid, Temperate and Frigid Zones'—Sources of Error in Children's Thinking." *The Teaching of Geography.* Twenty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 483-85.
155. ANDERSON, HOWARD R., and LINDQUIST, EVERET F. "The Improvement of Objective Testing in History." *Classroom and Administrative Problems in the Teaching of the Social Sciences.* Second Yearbook, National Council for the Social Studies. Philadelphia: McKinley Publishing Co., 1932. p. 97-117.
156. BEARD, CHARLES A. *A Charter for the Social Sciences in the Schools.* Report of the Commission on the Social Studies of the American Historical Association, Part I. New York: Charles Scribner's Sons, 1932, 122 p.
157. BELLEAU, W. E. "State Regulation of Private Schools." *School and Society* 34: 436-40; September 26, 1931.
158. BIDDLE, WILLIAM W. *Propaganda and Education.* Contributions to Education, No. 531. New York: Teachers College, Columbia University, 1932. 84 p.
159. BLYTHE, IRENE T. "The Textbooks and the New Discoveries, Emphases, and Viewpoints in American History." *Historical Outlook* 23: 395-402; December, 1932.
160. BRIGHAM, ALBERT PERRY, and DODGE, RICHARD E. "Nineteenth Century Textbooks of Geography." *The Teaching of Geography.* Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 3-27.
161. BROOKS, ALICE R. "The Integration of Library Instruction with the High School Social Studies." *School Library Yearbook No.* 5. Chicago: American Library Association, 1932. p. 121-44.
162. BROWN, ROBERT. "Vocabularies of History and Reading Textbooks." *Bulletin (Tenth Yearbook)* 10: 408-11; April, 1931. Washington, D. C.; Department of Elementary School Principals, National Education Association.
163. CAREY, ALICE E.; HANNA, PAUL R.; and MERIAM, J. L. *Catalog: Units of Work, Activities, Projects, etc. to* 1932. New York: Teachers College, Columbia University, 1932. 290 p.
164. CARPENTER, W. W. "Curricular Offerings in Missouri." *Junior College Journal* 2: 16-23; October, 1931.
165. CARROTHERS, GEORGE E. "High-School Curriculum Revisions and Innovations." *Junior-Senior High School Clearing House* 6: 262-70; January, 1932.
166. CARTER, THYRA. "Racial Elements in American History Textbooks." *Historical Outlook* 22: 147-51; April, 1931.
167. CLUCAS, CHARLES S. "The Problem of Dates in the Teaching of History and in Measurement." *Journal of Educational Research* 26: 90-96; October, 1932.
168. COCHRAN, WARREN B. "Geography as an Admission Subject to Liberal-Arts Colleges." *The Teaching of Geography.* Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 551-56.
169. CRAMER, JOHN FRANCIS. "Relative Difficulty of Junior High School Social Studies Texts." *Journal of Educational Research* 26: 425-28; February, 1933.
170. CRAWFORD C. C., and WALKER, W. L. "An Experiment in Teaching History Backward." *Historical Outlook* 22: 395-97; December, 1931.

171. DEXHEIMER, LORA M. "Systematizing the Use of Pictures in Teaching Sixth-Grade Geography." *The Teaching of Geography.* Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 507-19.
172. FLOYD, OLIVER R. "Overlapping between the Senior High School Courses in Problems of Democracy and American History." *Historical Outlook* 23: 296-302; October, 1932.
173. FRANK, GLENN. *Thunder and Dawn; the Outlook for Western Civilization with Special Reference to the United States.* New York: Macmillan Co., 1932. 404 p.
174. GOLUB, JAY, and SWAHN, ALFRED D. "Do American History Students Change Their Attitudes after One Term's Work?" *Historical Outlook* 24: 25-28; January, 1933.
175. GOODRICH, T. V. "Is the Workbook a Necessity or a Luxury?" *School Executives Magazine* 50: 359-61, 396; April, 1931.
176. GUNDERSON, AGNES G. "Geographical Materials Contained in Readers for the First Three Grades." *Elementary School Journal* 33: 608-15; April, 1933.
177. HARBOURT, JOHN. "The World War in French, German, English and American Secondary School Textbooks." *Some Aspects of the Social Sciences in the Schools.* First Yearbook, National Council for the Social Studies. Philadelphia: McKinley Publishing Co., 1931. p. 54-117.
178. HART, ISABELLE K. "A Classification of Common Errors in Geography Made by Teachers and Pupils." *The Teaching of Geography.* Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 479-82.
179. HENDERSON, JETTA FAUSEL. *Curricular Organization of the Social Studies in the Junior High School.* Master's thesis, University of Southern California, 1930. (Summarized in *Historical Outlook* 22: 174; April, 1931.)
180. HOWE, GEORGE F. "A Study of the Ability of Elementary-School Pupils to Read Maps." *The Teaching of Geography.* Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 486-92.
181. HUNTER, EARLE L. *A Sociological Analysis of Certain Types of Patriotism.* New York: the author (69 Tiemann Pl.), 1932. 263 p. (Doctor's thesis, Teachers College, Columbia University.)
182. JOHNSON, HENRY. *An Introduction to the History of the Social Sciences in Schools.* Report of the Commission on the Social Studies of the American Historical Association, Part II. New York: Charles Scribner's Sons, 1932. 145 p.
183. JOHNSON, LAURA TERRELL. "Changing Objectives in Geography." *Classroom and Administrative Problems in the Teaching of the Social Sciences.* Second Yearbook, National Council for the Social Studies. Philadelphia: McKinley Publishing Co., 1932. p. 175-80.
184. KELTY, MARY G. "A Suggested Basic Vocabulary in American History for the Middle Grades." *Journal of Educational Research* 24: 335-49; December, 1931.
185. KILPATRICK, WILLIAM H. *Education and the Social Crisis.* Kappa Delta Pi Lecture Series, Vol. 4. New York: H. Liveright, 1932. 90 p.
186. KIMMEL, WILLIAM G. *Instruction in the Social Studies.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 21. Washington, D. C.: Government Printing Office, 1933. 105 p.
187. KREY, A. C., and WESLEY, EDGAR B. "Does the New-Type Test Measure Results of Instruction in the Social Studies?" *Historical Outlook* 23: 7-21; January, 1932.
188. LACEY, JOY M. *Social Studies Concepts of Children in the First Three Grades.* Contributions to Education, No. 548. New York: Teachers College, Columbia University, 1932. 89 p.
189. LACEY, JOY M. "What Effect Has the Emphasis on Social Studies Had on the Content of Readers?" *Educational Method* 10: 532-37; June, 1931.
190. LIMBERT, PAUL M. "What Children Think about War." *Progressive Education* 10: 67-71; February, 1933.
191. LINDAHL, HANNAH M. "History in the Intermediate Grades." *Elementary School Journal* 32: 257-65; December, 1931.
192. MCCALLISTER, JAMES M. "Reading Difficulties in Studying Content Subjects." *Elementary School Journal* 31: 191-201; November, 1930.

193. McHugh, Francis A. "The Relative Placement of Arithmetic and Geography Units in the School Curriculum." *Kadelpian Review* 12: 35-41; November, 1932.
194. Marks, Florence Pool. "The Social Studies in Grades IX-XII in Reorganized and Un-reorganized Schools." *School Review* 41: 347-55; May, 1933.
195. Moore, Myrtle L. "History in Junior Colleges Accredited by the North Central Association of Colleges and Secondary Schools." *Some Aspects of the Social Sciences in the Schools.* First Yearbook, National Council for the Social Studies. Philadelphia: McKinley Publishing Co., 1931. p. 40-53.
196. National Council for the Social Studies. *Some Aspects of the Social Sciences in the Schools.* First Yearbook. Philadelphia: McKinley Publishing Co., 1931. 176 p.
197. National Council for the Social Studies. *Classroom Administrative Problems in the Teaching of the Social Studies.* Second Yearbook. Philadelphia: McKinley Publishing Co., 1932. 232 p.
198. National Council for the Social Studies. *Supervision in the Social Studies.* Third Yearbook. Philadelphia: McKinley Publishing Co., 1933. 260 p.
199. National Society for the Study of Education. *The Teaching of Geography.* Thirty-second Yearbook. Bloomington, Ill.: Public School Publishing Co., 1933. 615 p.
200. National Society of College Teachers of Education. *The Educational Frontier.* Yearbook No. 21. Chicago: University of Chicago Press, 1933. 325 p. (Also published by D. Appleton-Century Co.)
201. O'Brien, F. P., and Watkins, G. E. "Objectives of History Teachers in High Schools of Kansas." *University of Kansas Bulletin of Education* 3: 6-9; October, 1931.
202. Pennincroth, Paul W. *A Study of Public Opinion on International Relations in Certain Communities.* Tampa, Fla.: Florida Grower Press, 1932. 111 p.
203. Peters, Charles C., and Altman, John E. "A Critical Study of the Content of Standardized Tests in American History." *Journal of Educational Research* 23: 153-61; February, 1931.
204. Pierce, Bessie Louise. *Citizens' Organizations and the Civic Training of Youth.* Report of the Commission on the Social Studies of the American Historical Association, Part III. New York: Charles Scribner's Sons, 1933. 428 p.
205. Pierce, Bessie Louise. *Civic Attitudes in American School Textbooks.* Chicago: University of Chicago Press, 1930. 297 p.
206. President's Research Committee on Social Trends. *Recent Social Trends in the United States.* New York: McGraw-Hill Book Co., 1933. 2 vols.
207. Pressey, L. C., and Pressey, S. L. "The Determination of a Minimal Vocabulary in American History." *Educational Method* 12: 205-11; January, 1933.
208. Pressey, L. C. "Fundamental Vocabulary in Elementary School Geography." *Journal of Geography* 32: 78-81; February, 1933.
209. Pressey, L. C., and Fischer, R. "The Geographical Background Necessary for the Study of History." *Educational Research Bulletin (Ohio State University)* 11: 234-38; April 27, 1932.
210. Progressive Education Association, Committee on Social and Economic Problems. *A Call to the Teachers of the Nation.* New York: John Day Co., 1933. 31 p.
211. Reed, Mary M., and Wright, Lula E. *The Beginnings of the Social Sciences.* New York: Charles Scribner's Sons, 1932. 224 p.
212. Roach, William Lloyd. "Correlation with Other Subjects in Junior High School United States History Textbooks." *School and Society* 33: 178-79; January 31, 1931.
213. Robbins, Floy. "Can Geography Contribute to an Interest in, and an Understanding of, Current Magazine Articles?" *The Teaching of Geography.* Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 561-65.
214. Rosenbloum, Minnie. "Men Mentioned in Five Junior High School American History Textbooks." *Historical Outlook* 22: 26-27; January, 1931.
215. Rugg, Harold Ordway. *The Great Technology; Social Chaos and the Public Mind.* New York: John Day Co., 1933. 308 p.

216. Russell, H. Harrison. "The Status of Geography in the Junior High School." *The Teaching of Geography*. Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 539-44.
217. Scherf, Charles H. "The Social Studies in Fifty Typical Junior Colleges in the United States." *Historical Outlook* 22: 7-17; January, 1931.
218. Shaffer, Laurance F. *Children's Interpretations of Cartoons*. Contributions to Education, No. 429. New York: Teachers College, Columbia University, 1930. 73 p.
219. Shields, H. G. "School and College Courses in Economics." *Journal of Educational Sociology* 4: 154-62; November, 1930.
220. Shilling, D. C. "Legal Requirements for the Teaching of Civics." *Historical Outlook* 24: 181-86; April, 1933.
221. Sisson, Edward O. "Statistical Determination of the Social Science Curriculum." *Journal of Educational Research* 27: 41-45; September, 1933.
222. Stull, DeForest. "The Nature and Quantity of the Geographic Content of Social-Studies Courses." *The Teaching of Geography*. Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 566-71.
223. Swartz, David J. "A Study of Variation in Map Symbols." *Elementary School Journal* 33: 678-89; May, 1933.
224. Swindler, R. E. "The High School Library and Reading Problems in the Social Studies." *Historical Outlook* 22: 407-16; December, 1931.
225. Symonds, Clare. "The Status of Geography in the Senior High School." *The Teaching of Geography*. Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 545-46.
226. Thomas, Katheryne Colvin. "The Ability of Children to Interpret Graphs." *The Teaching of Geography*. Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 492-94.
227. Thorp, Mary Tucker. "Studies of the Ability of Pupils in Grades Four to Eight to Use Geographic Tools." *The Teaching of Geography*. Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 494-506.
228. Thralls, Zoe. "Some General Curricular Principles and Their Application." *The Teaching of Geography*. Thirty-second Yearbook. National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 201-18.
229. Tormey, Thomas J. "The Effect of Drill Upon Specific and General Comprehension of Historical Content." (Abstract in *University of Iowa Studies*, Series on Aims and Progress of Research, No. 38, New Series No. 248, April 1, 1933.)
230. Van Bibber, Lena C. "An Exploratory Study of Specific Class-Room Difficulties in the Teaching of History and Other Social Studies." *Classroom and Administrative Problems in the Teaching of the Social Sciences*. Second Yearbook, National Council for the Social Studies. Philadelphia: McKinley Publishing Co., 1932. p. 7-54.
231. Van Dyke, George E. "Trends in the Development of the High-School Offering." *School Review* 39: 657-64, 737-47; November-December, 1931.
232. Weaver, Robert B. "Extensive and Intensive Methods in History." *Historical Outlook* 23: 292-96; October, 1932.
233. Weaver, Robert B. "The Relative Value of Intensive and Extensive Reading in United States History." *School Review* 39: 217-26; March, 1931.
234. Wesley, Edgar B., and Murra, Wilbur F. "Social Science Reference Books in Fifty-eight Minnesota High School Libraries." *Historical Outlook* 23: 403-7; December, 1932.
235. Wilson, Ella M. "Difficulties in Using Geography Texts." *The Teaching of Geography*. Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 475-79.
236. Wilson, H. E., and Erb, B. P. "A Survey of Social Studies Courses in 301 Junior High Schools." *School Review* 39: 497-507; September, 1931.
237. Wirth, Fremont P. "Classroom Difficulties in the Teaching of History." *Historical Outlook* 22: 115-17; March, 1931.

238. ZINK, NORAH E. "Eighty-two Studies in the Teaching of Geography Classified by Content and Technique, with Selected Summaries." *The Teaching of Geography*. Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 431-73.

Modern Foreign Languages

239. ALTROCCHI, RUDOLPH. "Third List of Deceptive Cognates." *Italica* 8: 33-39; June, 1931. "Fourth List of Deceptive Cognates." *Italica* 9: 5-9; March, 1932.
240. ARNOLD, H. H. "List of Graded Vocabularies and a Method of Grading." *Modern Language Journal* 16: 644-55; May, 1932.
241. ARNOLD, H. H. "A Survey of Tense Frequencies in French, Spanish and Italian." *Modern Language Forum* 17: 87-89; June, 1932.
242. ARNOLD, H. H. "Tense Frequency in the Spanish Novel and Drama." *Modern Language Journal* 14: 234-35; December, 1929.
243. BAKER, FLORENCE M. "A Tentative Vocabulary for First Year French Students." *Journal of Educational Research* 18: 369-77; December, 1928.
244. BLACKBURN, MARGARET. "An Analysis of the Vocabulary of Two Recent French Grammars." *Modern Language Journal* 14: 431-41; March, 1930.
245. BRECKHEIMER, J. P. "The Kind and Frequency of Typical Errors in Written French." *Modern Language Forum* 12: 5-7; June, 1927.
246. BUCK, DALLAS C. *A Derivative Study of the First 2500 Words in the Vander Beke French Word Book*. Master's thesis, State University of Iowa, 1931. 152 p.
247. CALBICK, GLADYS. *A Consideration of Vocabularies of Ten Spanish Texts*. Master's thesis, University of Chicago, 1932. 32 p.
248. COLE, ROBERT D. "Selecting French Readers." *Modern Language Forum* 17: 42-45; April, 1932.
249. CORREL, ALICE, and OTHERS. *Tentative Syllabus in Modern Foreign Languages*. Albany, N. Y.: University of the State of New York, 1930.
250. CRIDER, BLAKE. "An Analysis and Interpretation of Errors Made in Translating Spanish Prose." *Modern Language Journal* 15: 123-26; November, 1930.
251. EMERY, MARGARET A. *The Composition and Amount of a Minimum Vocabulary for Reading Ungraded French Texts*. Master's thesis, University of Chicago, 1931. 39 p. (Summarized in: Coleman, Algernon. *An Analytical Bibliography of Modern Language Teaching, 1927-1932*. Chicago: University of Chicago Press, 1933. p. 136-37.)
252. ENGEL, E. F. "The Use of a Standardized Vocabulary in Beginning German." *Modern Language Journal* 15: 281-91; January, 1931.
253. FISKE, HENRY M., chairman. "Report of the Committee on Modern Foreign Languages." *Report of a Study of the Secondary Curriculum*. rev. ed. Milton, Mass.: Secondary Education Board, 1933. p. 100-219.
254. FLANAGAN, SISTER WILBROD. *Verb Syntax in Modern French Literature*. Master's thesis, University of North Dakota, 1928. 58 p. (Summarized in: Coleman, Algernon. *An Analytical Bibliography of Modern Language Teaching, 1927-1932*. Chicago: University of Chicago Press, 1933. p. 155-57.)
255. FOTOS, JOHN T. "Word and Idiom Frequency Counts in French and Their Value." *Modern Language Journal* 15: 344-53; February, 1931.
256. GARCIA, EDWARD C. "Reading Method and Culture Study." *Modern Language Forum* 16: 60-61; April, 1931.
257. GILMAN, GERTRUDE M. "The Cultural Material in the French Curriculum of Illinois High Schools." *Studies in Modern Language Teaching*. Publications of the American and Canadian Committees on Modern Languages, Vol. 17. New York: Macmillan Co., 1930. Chapter VII, p. 225-77.
258. HATHAWAY, LILLIE V. "A German Error Count—an Experimental Study." *Modern Language Journal* 13: 512-33; April, 1929.
259. HAYGOOD, J. D. "The Amount and Composition of a Minimum Essential French Reading Vocabulary." *Modern Language Journal* 18: 177-89; December, 1933.
260. HENMON, V. A. C. *French Word Book; Based on a Count of 400,000 Running Words*. Bureau of Educational Research, Bulletin No. 3. Madison, Wis.: University of Wisconsin, 1924. 84 p.
261. HILLS, E. C., and ANDERSON, J. O. "Frequency of Moods and Tenses of Verbs in Recent Spanish Plays." *Hispania* 12: 604-6; December, 1929.

262. Hills, E. C., and Anderson, J. O. "Frequency of Verbs and Tenses in Spanish Plays." *Hispania* 13: 413-16; November, 1930.
263. Hills, E. C., and Anderson, J. O. "Relative Frequency of Spanish Personal Pronouns." *Hispania* 14: 335-37; November, 1931.
264. Hills, E. C. "Spanish Words of High Frequency." *Hispania* 14: 338-40; November, 1931.
265. Jackson, Helen. *Syntax of the Past Tenses in Certain Contemporary French Plays.* Master's thesis, University of Chicago, 1930. 101 p. (Summarized in: Coleman, Algernon. *An Analytical Bibliography of Modern Language Teaching, 1927-1932.* Chicago: University of Chicago Press, 1933. p. 159-60.)
266. Keniston, Hayward. *Basic List of Spanish Words and Idioms.* Chicago: University of Chicago Press, 1933. 68 p.
267. Knease, Tacie Mary. *An Italian Word List from Literary Sources.* Toronto: University of Toronto Press, 1933.
268. Kurz, Harry, and Kurz, Grace C. "The Realia Found in French Readers Used in College Courses." *Studies in Modern Language Teaching.* Reports of the American and Canadian Committees on Modern Languages, Vol. 17. New York: Macmillan Co., 1930. Chapter VIII, p. 281-324.
269. Lake, Esther Irene. *Syntactic Study of French Reading Texts.* Master's thesis, University of Chicago, 1929. 84 p. (Summarized in: Coleman, Algernon. *An Analytical Bibliography of Modern Language Teaching, 1927-1932.* Chicago: University of Chicago Press, 1933. p. 161-62.)
270. Limper, Louis H. *Student Knowledge of Some French-English Cognates.* Doctor's thesis, State University of Iowa, 1931. 180 p. (Summarized in: Coleman, Algernon. *An Analytical Bibliography of Modern Language Teaching, 1927-1932.* Chicago: University of Chicago Press, 1933. p. 142-43.)
271. Miller, John F. *A Vocabulary Study of Ten French Reading Texts Based on the Vander Beke French Word Book.* Master's thesis, State University of Iowa, 1931. 62 p. (Summarized in: Coleman, Algernon. *An Analytical Bibliography of Modern Language Teaching, 1927-1932.* Chicago: University of Chicago Press, 1933. p. 144-46.)
272. Morgan, B. Q., and Oberdeck, Lydia M. "Active and Passive Vocabulary." *Studies in Modern Language Teaching.* Publications of the American and Canadian Committees on Modern Languages, Vol. 17. New York: Macmillan Co., 1930. Chapter 6, p. 213-21.
273. New York (City) Board of Education. *Syllabus of Minima in Modern Foreign Languages.* New York: Board of Education, 1931. 146 p.
274. Post, Clara May. *A Comparison of Existing Spanish Word Lists Prepared for the Use of High School Students in First and Second Years.* Master's thesis, University of Southern California, 1928. 81 p. (Summarized in: Coleman, Algernon. *An Analytical Bibliography of Modern Language Teaching, 1927-1932.* Chicago: University of Chicago Press, 1933. p. 146.)
275. Purin, C. M. *A Standard German Vocabulary of 2000 Words and Idioms.* Chicago: University of Chicago Press, 1931. 195 p.
276. Rogal, Abraham. *The Frequency of Error in Representative Grammatical Constructions in First Term High School French.* Master's thesis, College of the City of New York, 1930. 115 p. (Summarized in: Coleman, Algernon. *An Analytical Bibliography of Modern Language Teaching, 1927-1932.* Chicago: University of Chicago Press, 1933. p. 168-69.)
277. Ryan, Mary B. *Vocabulary Studies in Second Year French Reading Texts.* Master's thesis, State University of Iowa, 1929. 23 p. (Summarized in: Coleman, Algernon. *An Analytical Bibliography of Modern Language Teaching, 1927-1932.* Chicago: University of Chicago Press, 1933. p. 146-47.)
278. Sandal, Caroline. "Difficulties in the Learning of French in the High Schools." *Bulletin of High Points* 12: 13-22: June, 1930.
279. Schinnerer, O. P., and Wendt, H. G. "A Suggested List of 1000 Active German Words." *German Quarterly* 6: 77-90; March, 1933.
280. Sears, Edith K. "The Vocabularies of Two Direct-Method French Grammars for Beginners." *Modern Language Journal* 15: 599-606; May, 1931.
281. Spaulding, Robert K. "Infinitive and Subjunctive with *Hacer, Mandar, Dejar,* and the Like." *Hispania* 16: 425-32; November-December, 1933.

282. Stover, Isabelle B. *The Vocabularies of Six French Text-Books.* Master's thesis, University of Chicago, 1931. 282 p. (Summarized in: Coleman, Algernon. *An Analytical Bibliography of Modern Language Teaching, 1927-1932.* Chicago: University of Chicago Press, 1933. p. 263-64.)
283. Sudran, Abe L. *Syntax of the Verb in Four Contemporary French Novels.* Master's thesis, University of Chicago, 1931. 91 p. (Summarized in: Coleman, Algernon. *An Analytical Bibliography of Modern Language Teaching, 1927-1932.* Chicago: University of Chicago Press, 1933. p. 164-65.)
284. Thorndike, Edward L. *A Teacher's Word Book.* New York: Teachers College, Columbia University, 1921. 134 p.
285. Vander Beke, George E., editor. *French Word Book.* Publications of the American and Canadian Committees on Modern Languages, Vol. 15. New York: Macmillan Co., 1929. 188 p.
286. Van Horne, John, and Van Horne, Margaret V. "The Cultural Content of Spanish Reading Material at the Junior College Level." *Studies in Modern Language Teaching:* Publications of the American and Canadian Committees on Modern Languages, Vol. 17. New York. Macmillan Co., 1930. Chapter 9, p. 327-63.
287. Wade, Gerald E., and Banner, J. Worth. *A Minimum Essential Spanish Reading Vocabulary.* Unpublished manuscript of 23 pages. Will be reported in some detail in volume which the Committee on Modern Language Teaching expects to publish this year.
288. Webb, L. W., chairman. "Reorganization in French, Spanish and German." *High School Curriculum Reorganization.* Ann Arbor, Mich.: North Central Association of Colleges and Secondary Schools, 1933. p. 175-214.
289. West, Michael P. "Speaking-Vocabulary in a Foreign Language (1000 Words)." *Modern Language Journal* 14: 509-21; April, 1930.
290. Wilkins, Lawrence A. *Spanish Word and Idiom Lists.* New York: Doubleday, Doran and Co., 1925. 32 p.
291. Zinno, Donato. *Il Piccolo Vocabolaria.* New York: Italian Publishers, 1933. 35 p.

Health

292. Barker, M. Elizabeth. *Personality Adjustments of Teachers Related to Efficiency in Teaching.* Doctor's thesis, Teachers College, Columbia University. 1933. 140 p.
293. Brammell, P. Roy. *Health Work and Physical Education.* U. S. Dept. of the Interior. Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 28. Washington, D. C.: Government Printing Office, 1933. 98 p.
294. Brammell, P. Roy. *Intramural and Interscholastic Athletics.* U. S. Dept. of the Interior. Office of Education. Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 27. Washington, D. C.: Government Printing Office, 1933. 143 p.
295. Caldwell, Otis W.; Skinner, C. E.; and Tietz, J. W. *Biological Foundations of Education.* Boston: Ginn and Co., 1931. 534 p.
296. Caldwell, Otis W., and Lundeen, Gerhard E. *An Experimental Study of Superstitions and Other Unfounded Beliefs as Related to Certain Units of General Science.* New York: Teachers College, Columbia University, 1932. 138 p.
297. Cozens, Frederick W. "The Technique of a School Survey in Health and Physical Education." *Research Quarterly of the American Physical Education Association* 3: 3-20; December, 1932.
298. Davis, Elwood C. *Methods and Techniques Used in Surveying Health and Physical Education in City Schools.* Contributions to Education, No. 515. New York: Teachers College, Columbia University, 1932. 162 p.
299. Dunshee, Marion Elizabeth. "A Study of Factors Affecting the Amount and Kind of Food Eaten by Nursery School Children." *Child Development* 2: 163-83; September, 1931.
300. Eastwood, Floyd R. "A Study of Subject Matter, Materials and Methods in Health." *Journal of Educational Sociology* 3: 536-45; May, 1930.
301. Franzen, Raymond H. *An Evaluation of School Health Procedures.* School Health Research Monographs, No. 5. New York: American Child Health Association, 1933. 127 p.

302. Franzen, Raymond H. *Influence of Social and Economic Factors on the Health of the School Child.* School Health Research Monographs, No. 4. New York: American Child Health Association, 1932. 144 p.
303. Franzen, Raymond H. *Public Health Aspects of Dental Decay in Children.* School Health Research Monographs, No. 3. New York: American Child Health Association, 1930. 121 p.
304. Gillett, Lucy H., and Rice, Penelope B. *Influence of Education on the Food Habits of Some New York City Families.* New York: New York Association for Improving the Condition of the Poor, 1931. 48 p.
305. Hughes, W. L. *The Administration of Health and Physical Education for Men in Colleges and Universities.* Contributions to Education, No. 541. New York: Teachers College, Columbia University, 1932. 181 p.
306. Hussey, Marguerite M. *Principles and Methods of Teaching Health.* Doctor's thesis, New York University, 1930. 173 p.
307. Jones, Hiram A. *The Administration of Health and Physical Education in New York State.* Doctor's thesis, Teachers College, Columbia University, 1933. 302 p.
308. Lewerenz, Alfred S. "Traffic Fatalities to School Children." *Los Angeles Educational Research Bulletin* 11: 6-11; September, 1931.
309. Lundeen, Gerhard E., and Caldwell, Otis W. "A Study of Unfounded Beliefs among High-School Seniors." *Journal of Educational Research* 22: 257-73; November, 1930.
310. Maller, J. B. "Economic and Social Correlatives of School Progress in New York City." *Teachers College Record* 34: 655-70; May, 1933.
311. Maller, J. B., and Lundeen, Gerhard E. "Sources of Superstitious Beliefs." *Journal of Educational Research* 26: 321-43; January, 1933.
312. Meyers, Jerome. "Physical Findings in New York City Continuation School Boys." *American Journal of Public Health* 21: 615-32; June, 1931.
313. New York Commission on Ventilation. *School Ventilation.* New York: Teachers College, Columbia University, 1931. 73 p.
314. Oberteuffer, Delbert. *Personal Hygiene for College Students.* Contributions to Education, No. 407. New York: Teachers College, Columbia University, 1930. 121 p.
315. Osborn, Eleanor. *Experiment in Health Education.* Master's thesis, Stanford University, 1932.
316. Paterson, Donald G. *Physique and Intellect.* New York: Century Co., 1930. 304 p.
317. Pettit, Jane F. *A Problem in Curriculum Construction in Health Education for the First Grade.* Master's thesis, State University of Iowa, 1932.
318. Phelan, Anette M. *A Study of School Health Standards.* Doctor's thesis, Teachers College, Columbia University, 1933. 254 p.
319. Ready, Marie M. *Physical Education and Health Education as a Part of all General Teacher-Training Curricula.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 10. Washington, D. C.: Government Printing Office. 47 p.
320. Rhoton, Paul. *Health Misconceptions of Prospective Teachers.* Penn State Studies in Education, No. 5. State College, Pa.: Pennsylvania State College, 1932. 80 p.
321. Rogers, James Frederick, compiler. *School Health Activities in 1930; Summary of Information Collected for the White House Conference on Child Health and Protection.* U. S. Dept. of the Interior, Office of Education, Pamphlet No. 21. Washington, D. C.: Government Printing Office, 1931. 33 p.
322. Rugen, Mabel E. *The Organization of Physical and Health Education in Teacher Training Institutions Preparing Teachers for the Elementary Grades.* Doctor's thesis, New York University, 1930. 300 p.
323. Sanders, J. Edward. *Safety and Health in Organized Camps.* New York: National Bureau of Casualty and Surety Underwriters, 1931. 133 p.
324. Spencer, Mary Elisabeth. *Health Education for Teachers; a Critical Study of the Pre-Service Preparation of Classroom Teachers for the School Health Program.* Contributions to Education, No. 589. New York: Teachers College, Columbia University, 1933. 118 p.
325. Spooner, J. D. *Health Education through High School Biology.* Master's thesis, George Peabody College for Teachers, 1931. 64 p.

326. Sullivan, John Patrick. *Health Education: A Factor in Helping the Child Meet Modern Health Problems.* Doctor's thesis, Boston College, 1932.
327. Whitman, W. G. "General Science and Hygiene in the Junior High Schools of Massachusetts." *Science Education* 15: 215-18; May, 1931.

Physical Education

(See also Nos. 293, 294, 298, 305, 307, 319, 321, 322)

328. Affleck, George B. "Some Physical Aspects of Neuro-Muscular Control." *Research Quarterly of the American Physical Education Association* 2: 60-75; March, 1931.
329. Alden, Florence D., and Top, Hilda. "Experiment on the Relation of Posture to Weight, Vital Capacity and Intelligence." *Research Quarterly of the American Physical Education Association* 2: 38-41; October, 1931.
330. Blanchard, V. S. "An Analysis of the Likes and Dislikes of Boys and Girls in Health Education Activities." *Research Quarterly of the American Physical Education Association* 4: 238-45; March, 1933.
331. Clevett, Melvin A. "An Experiment in Physical Education Activities Related to the Teaching of Honesty and Motor Skills." *Research Quarterly of the American Physical Education Association* 3: 121-27; March, 1932.
332. Coops, Helen Leslie. *High School Standards in Girls' Athletics in the State of Ohio.* Doctor's thesis, Teachers College, Columbia University, 1933. 91 p.
333. Crapser, A. Lester. "National Physical Achievement Standards." *Journal of Health and Physical Education* 1: 14-16, 56; January, 1930.
334. Cureton, Thomas K. *Objective Tests of Swimming.* Master's thesis, International Y. M. C. A. College, 1930.
335. Howe, Eugene C. "Precision and Validation of Tests of Physical Fitness." *Research Quarterly of the American Physical Education Association* 1: 90-96; May, 1930.
336. Jameson, Emily D. *Physical Education for the Preparation of General Elementary School Teachers.* Contributions to Education, No. 402. New York: Teachers College, Columbia University, 1930. 118 p.
337. LaPorte, William R., chairman. "Report of the Committee on Curriculum Research." *Research Quarterly of the American Physical Education Association* 1: 15-40; May, 1930.
338. Lee, Mabel. "The Case for and against Intercollegiate Athletics for Women and the Situation since 1923." *Research Quarterly of the American Physical Education Association* 2: 93-127; May, 1931.
339. Lloyd, Frank S. *Safety in Physical Education in Secondary Schools.* New York: National Bureau of Casualty and Surety Underwriters, 1933. 167 p.
340. Morgan, W. P., chairman. "Report of the Committee on Physical Education and Athletics." *North Central Association Quarterly* 8: 26-69; June, 1933.
341. Neilson, N. P., chairman. "Report of the Committee of the American Physical Education Association on Teacher-Training in Physical Education in the United States." *Research Quarterly of the American Physical Education Association* 4: 51-67; March, 1933.
342. Wayman, Agnes. "What To Measure in Physical Education." *Research Quarterly of the American Physical Education Association* 1: 97-110; May, 1930.

Science

343. Caldwell, Otis W., and Lundeen, Gerhard E. "Changing Unfounded Beliefs: a Unit in Biology." *School Science and Mathematics* 33: 394-413; April, 1933.
344. Caldwell, Otis W., and Lundeen, Gerhard E. *An Experimental Study of Superstitions and Other Unfounded Beliefs as Related to Certain Units of General Science.* New York: Teachers College, Columbia University, 1932. 138 p.
345. Caldwell, Otis W., and Weller, Florence. "High School Biology Content as Judged by Thirty College Biologists." *School Science and Mathematics* 32: 411-24; April, 1932.
346. Caldwell, Otis W., and Lundeen, Gerhard E. "Students' Attitudes Regarding Unfounded Beliefs." *Science Education* 15: 246-66; May, 1931.
347. Curtis, Francis D. "The Teaching of Science in Secondary Schools." *North Central Association Quarterly* 6: 433-74; March, 1932.

348. Downing, E. R. "Does Science Teach Scientific Thinking?" *Science Education* 17: 87-89; April, 1933.
349. Edmiston, R. W. "Instructional Implications from a Study of Overlappings in Science." *Journal of Educational Research* 26: 501-7; March, 1933.
350. Heiss, Elwood D. *An Investigation of Content and Mastery of High School General Science Courses.* East Stroudsburg, Pa., 1932. 118 p.
351. Hunter, George William. "Sequence of Science in the Junior and Senior High School." *Science Education* 16: 103-15, December; 1931.
352. Hurd, A. W. *Cooperative Experimentation in Materials and Methods in Secondary School Physics.* New York: Teachers College, Columbia University, 1933. 60 p.
353. Maller, J. B., and Lundeen, Gerhard E. "Sources of Superstitious Beliefs." *Journal of Educational Research* 26: 321-43; January, 1933.
354. Monahan, A. C. "Science and Its Recognition in the High School Curriculum." *School Science and Mathematics* 30: 875-80; November, 1930.
355. Nettels, Charles H. "Scientific Interests of Junior-High School Pupils." *Science Education* 15: 219-25; May, 1931.
356. Persing, Ellis C. "Present Objectives in Biology." *Science Education* 17: 24-34; February, 1933.
357. Rodean, William A. "Overlapping of Content in Textbooks in General Science and Biology." *School Science and Mathematics* 32: 605-13; June, 1932.
358. Weller, Florence. "Attitudes and Skills in Elementary Science." *Science Education* 17: 90-97; April, 1933.
359. Weller, Florence, and Caldwell, Otis W. "The Nature Study and Elementary Science Movement." *School Science and Mathematics* 33: 730-40; October, 1933.

Mathematics

360. Benz, H. E. "Scientific Investigations of the Teaching of High School Mathematics Reported in 1932." *Mathematics Teacher* 26: 372-81; October, 1933.
361. Benz, H. E. "A Summary of Some Scientific Investigations of the Teaching of High School Mathematics." *The Teaching of Mathematics in the Secondary School.* Eighth Yearbook, National Council of Teachers of Mathematics. New York: Teachers College, Columbia University, 1933. p. 14-54.
362. Billett, Roy O. *Provisions for Individual Differences, Marking and Promotion.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 13. Washington, D. C.: Government Printing Office, 1933. 472 p.
363. Breslich, E. R. "Measuring the Development of Functional Thinking in Algebra." *The Teaching of Algebra.* Seventh Yearbook, National Council of Teachers of Mathematics. New York: Teachers College, Columbia University, 1932. p. 93-118.
364. Butler, Charles Henry. "Mastery of Certain Mathematical Concepts by Pupils at the Junior High School Level." *Mathematics Teacher* 25: 117-72; March, 1932.
365. Freeman, Ellen M. "Textbook Trends in Plane Geometry." *School Review* 40: 282-94; April, 1932.
366. Lide, Edwin S. *Instruction in Mathematics.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 23. Washington, D. C.: Government Printing Office, 1933. 72 p.
367. Pressey, L. C., and Moore, W. S. "The Growth of Mathematical Vocabulary from the Third Grade Through High School." *School Review* 40: 449-54; June, 1932.
368. Pressey, S. L.; Pressey, L. C.; and Zook, R. C. "The Essential Technical Vocabulary of Plane Geometry." *School Science and Mathematics* 32: 487-89; May, 1932.
369. Schorling, Raleigh, chairman. "Report of the Committee on Individual Differences." *Mathematics Teacher* 26: 350-65; October, 1933.
370. Schorling, Raleigh. *Tentative List of Objectives in the Teaching of Junior High School Mathematics.* Ann Arbor, Mich.: George Wahr, 1925. 137 p.

371. WHITCRAFT, LESLIE HARPER. *Some Influences of the Requirements and Examinations of the College Entrance Examination Board on Mathematics in Secondary Schools of the United States.* Contributions to Education, No. 557. New York: Teachers College, Columbia University, 1933. 115 p.

Art

372. BALTIMORE DEPARTMENT OF EDUCATION. *Art; Course of Study for the Senior High School.* Baltimore: Public Schools, 1930. 85 p.
373. BARNES, EMILY A., and YOUNG, BESS M. *Children and Architecture; a Unit of Work.* New York: Teachers College, Columbia University, 1932. 353 p.
374. CAREY, ALICE E.; HANNA, PAUL R.; and MERIAM, J. L. *Catalog: Units of Work, Activities, Projects, etc., to 1932.* New York: Teachers College, Columbia University, 1932. p. 8, 10-12.
375. CARROLL, HERBERT A., and EURICH, ALVIN C. "Abstract Intelligence and Art Appreciation." *Journal of Educational Psychology* 23: 214-20; March, 1932.
376. CHENEY STATE NORMAL SCHOOL. *Art Activity Course of Study for Elementary and Junior High Schools.* Cheney, Wash.: the Normal School, 1932. (Mimeographed.)
377. CLEVELAND HEIGHTS PUBLIC SCHOOLS. *Elementary School Course of Study: Art.* Cleveland Heights, Ohio: Public Schools, 1930. 89 p. (Mimeographed.)
378. CRAVEN, THOMAS. *Men of Art.* New York: Simon and Schuster, 1931. 524 p.
379. CROSSMAN, A. W. *Changing Conceptions in Art Education.* Columbus: Ohio State University, 1931. 60 p.
380. CROWLEY, EDNA E. E. *An Experiment in Methods of Teaching Design.* Master's thesis, University of Chicago, 1931. 87 p.
381. DANIELS, PARMELY C. "Discrimination of Compositional Balance at the Pre-School Level." *University of Iowa Studies in Psychology, No. 18.* Psychological Monographs, Vol. 45, No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. 1-11.
382. DOW, MILDRED. "Playground Behavior Differentiating Artistic from Non-artistic Children." *University of Iowa Studies in Psychology, No. 18.* Psychological Monographs, Vol. 45, No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. 82-94.
383. DREPS, HILDEGARDE, F. "The Psychophysical Capacities and Abilities of College Art Students of High and Low Standing." *University of Iowa Studies in Psychology, No. 18.* Psychological Monographs, Vol. 45, No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. 134-46.
384. ENG, HELGA. *Psychology of Children's Drawings from the First Stroke to the Coloured Drawing.* New York: Harcourt, Brace and Co., 1931. 223 p.
385. FARNUM, ROYAL BAILEY. "Art Education." *Biennial Survey of Education, 1928-1930.* Vol. I. U. S. Dept. of the Interior, Office of Education, Bulletin, 1931, No. 20. Washington, D. C.: Government Printing Office, 1932. Chapter 8, p. 297-322.
386. FARNUM, ROYAL BAILEY. "Some Findings in Art Education in the United States." *Education* 52: 406-9; March, 1932.
387. FARNUM, ROYAL BAILEY. "Trends in Art Education." *Journal of the National Education Association* 21: 161-62; May, 1932.
388. FEDERAL BOARD FOR VOCATIONAL EDUCATION. *Teaching of Art Related to the Home.* Bulletin No. 156, Home Economics Series No. 13. Washington, D. C.: Government Printing Office, 1931. 87 p.
389. GALL, ESTHER. *Creative Work for Children Talented in Art.* Master's thesis, New York University, 1932. 81 p.
390. GEDDES, NORMAN BEL. *Horizons.* Boston: Little, Brown and Co., 1932. 293 p.
391. GRIPPEN, VELMA B. "A Study of Creative Artistic Imagination in Children by the Constant Contact Procedure." *University of Iowa Studies in Psychology, No. 18.* Psychological Monographs, Vol. 45, No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. 63-81.
392. HAWLEY, CECILIA L. *Art Reference Material as an Aid for Teachers.* Master's thesis, New York University, 1932. 188 p.

393. Hilpert, Robert S. "Art." *Instruction in Music and Art.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education Monograph No. 25. Washington, D. C.: Government Printing Office, 1933. Part II, p. 45-68.

394. Jacobson, Wilhelmina E. "An Experimental Investigation of the Basic Aesthetic Factors in Costume Design." *University of Iowa Studies in Psychology, No. 18.* Psychological Monographs, Vol. 45, No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. 147-84.

395. Jasper, Constance C. "The Sensitivity of Children of Pre-school Age to Rhythm in Graphic Form." *University of Iowa Studies in Psychology No. 18.* Psychological Monographs, Vol. 45, No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. 12-25.

396. Katz, Elias. "Educational Possibilities of Films in Art Courses." *Educational Screen* 12: 60-61; February, 1933.

397. Keppel, Frederick P., and Duffus, R. L. *The Arts in American Life.* Recent Social Trends Monograph. New York: McGraw-Hill Book Co., 1933. 227 p.

398. Kinter, Madaline. *The Measurement of Artistic Abilities.* Prepared for the Carnegie Corporation by the Psychological Corporation, under the supervision of Paul S. Achilles, February, 1933.

399. Klar, Walter H.; Winslow, Leon L.; and Kirby, C. V. *Art Education in Principle and Practice.* Springfield, Mass.: Milton Bradley Co., 1933. 422 p.

400. Kline, Linus W., and Cary, Gertrude L. *Measuring Scale for Free-hand Drawing.* Part 2, "Design and Composition." Baltimore: Johns Hopkins Press, 1933. 58 p.

401. Knauber, Alma J. "A Study of the Art Ability Found in Very Young Children." *Child Development* 2: 66-71; March, 1931.

402. Larson, Minnie E. *An Analytical Investigation of Courses of Study in Art Education for the Elementary School.* Master's thesis, University of Chicago, 1931. 180 p.

403. Levy, Florence N. "Vocational Guidance in the Design Arts." *Education* 52: 390-95; March, 1932.

404. Long Beach City Schools. *Art; Course of Study for Grades Four, Five and Six.* Long Beach, Calif.: City Schools, 1931. 101 p.

405. Long Beach City Schools. *Art; Course of Study for Senior High Schools.* Long Beach, Calif.: City Schools, 1932. 139 p.

406. McLandress, Helen. *The Relation of Elements and Principles of Art to Everyday Life Objects.* Master's thesis, University of Chicago, 1932. 65 p.

407. Mathias, Margaret E. *The Teaching of Art.* New York: Charles Scribner's Sons, 1932. 356 p.

408. Mebane, Eleanor V. *Art Education in the Junior and Senior High School.* Master's thesis, George Peabody College for Teachers. 1931. 236 p.

409. Meier, Norman C. "Introduction to Studies in the Psychology of Art." *University of Iowa Studies in Psychology, No. 18.* Psychological Monographs, Vol. 45, No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. v-viii.

410. Mendenhall, James E., and Mendenhall, Marcia E. *The Influence of Familiarity upon Children's Preferences for Pictures and Poems.* New York: Teachers College, Columbia University, 1933. 74 p.

411. Moore, Lucy Hunt. *Educational Principles and Art Practices in Progressive Schools.* Master's thesis, George Peabody College for Teachers, 1932. 93 p.

412. Mullins, Vernon H. *Survey of Junior College Curricula with Regard to Vocational Opportunity in Art.* Master's thesis, University of Southern California, 1932.

413. Mumford, Lewis. *Sticks and Stones; a Study of American Architecture and Civilization.* New York: Boni and Liveright, 1924. 247 p.

414. New York (City) Board of Education. *Art Appreciation.* Required work New York City High Schools. New York: the Board, 1930. 132 p.

415. Parent-Teacher Association of Lincoln School. *Spend Your Time; New York Resources for the Use of Leisure.* New York: Teachers College, Columbia University, 1933. p. 1-9.

416. Pearson, Ralph M. "Creative Arts in Community Life." *Progressive Education* 9: 319-22; April, 1932.

417. Pittsburgh Board of Public Education. *Course of Study in Art Education, Kindergarten to Twelfth Year.* Pittsburgh: the Board, 1931. 150 p.
418. "Radio Programs on Art." *High Points* 15: 11-27; May, 1933.
419. Rank, Otto. *Art and Artists; Creative Urge and Personality Development.* New York: Alfred A. Knopf, 1932. 431 p.
420. Rochester Board of Education. *Tentative Course of Study in Art Education for Senior High School.* Rochester, N. Y.: the Board, 1931. (Mimeographed.)
421. Rodgers, Frances. "Variation in the Aesthetic Environment of Artistic and Non-Artistic Children." *University of Iowa Studies in Psychology, No. 18.* Psychological Monographs, Vol. 45, No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. 95-107.
422. Schnyder, Dorothy M. *A Study of the Correlation of Museums with Public Schools in Art Education.* Master's thesis, New York University, 1931. 66 p.
423. Siceloff, Margeret McAdory, and Woodyard, Ella. *Validity and Standardization of the McAdory Art Test.* New York: Teachers College, Columbia University, 1933. 32 p.
424. Skillman, H. C. "American Art from the College Campus; a Year's Activities in the Nation's Art Departments." *Parnassus* 5: 27-34; May, 1933.
425. Smith, J. B. "Trends of Thought in Art Education." *School Review* 41: 266-77; April, 1933.
426. Sweeney, Frances G.; Barry, Emily F.; and Schoelkopf, Alice E. Western *Youth Meets Eastern Culture; a Study in the Integration of Social Studies, English, and Art in the Junior High School.* New York: Teachers College, Columbia University, 1932. 335 p.
427. Tannahill, Sallie B. *Fine Arts for Public School Administrators.* New York: Teachers College, Columbia University, 1932. 145 p.
428. Taylor, Herma Madge. *Children's Interests as Revealed by Their Drawings in Three Grades.* Master's thesis, George Peabody College for Teachers, 1932. 60 p.
429. Tiebout, Carolyn. "The Psychophysical Functions Differentiating Artistically Superior from Artistically Inferior Children." *University of Iowa Studies in Psychology, No. 18.* Psychological Monographs, Vol. 45, No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. 108-33.
430. Todd, Jessie M. "Test in Art for Grade Children." *School Arts Magazine* 30: 365-68; February, 1931.
431. Twombly, Margaret. *The Historical Development and Value of the New Art Education.* Master's thesis, Colorado State Teachers College, 1930. 60 p.
432. Wall, Ernest A. *Aesthetic Sense and Education.* Doctor's thesis, New York University, 1931. 415 p.
433. Walton, William. "The Sensitivity of Children and Adults to Color Harmony." *University of Iowa Studies in Psychology, No. 18.* Psychological Monographs, Vol. 45. No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. 51-62.
434. Waymack, Eunice H., and Hendrickson, Gordon. "Children's Reactions as a Basis for Teaching Picture Appreciation." *Elementary School Journal* 33: 268-76; December, 1930.
435. White, Roberta, and Johnson, B. "Children's Classes in Modern Art." *Child Development* 1: 347-49; December, 1930.
436. Whitford, William G. "Analysis of the Art Curriculum." *School Arts Magazine* 32: 582-89, x-xi; June, 1933.
437. Whitford, William G. "Changing Objectives and Trends in Art Education." *School Arts Magazine* 32: 459-61, ix-xi; April, 1933.
438. Whorley, Katherine S. "An Experimental Investigation of the Sensitivity of Children to Compositional Unity." *University of Iowa Studies in Psychology, No. 18.* Psychological Monographs, Vol. 45, No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. 26-45.
439. Williams, Eileen J. "A Technique for Testing Color Harmony Sensitivity in Young Children." *University of Iowa Studies in Psychology, No. 18.* Psychological Monographs, Vol. 45, No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. 46-50.
440. Zinn, Mary C. *A Study of Originality in Children's Drawings.* Master's thesis, Pennsylvania State College, 1932. 84 p.

441. Adler, Mortimer J. *Music Appreciation; an Experimental Approach to its Measurement.* Archives of Psychology, No. 110. New York: Columbia University, 1929. 102 p.

442. Allen, Richard D.; Butterfield, Walter H.; and Tully, Marguerite. *Providence Inventory Test in Music.* Yonkers-on-Hudson, N. Y.: World Book Co., 1932.

443. Baltimore Department of Education. *Musical Achievement Test.* Baltimore: the Department, March, 1929.

444. Bannan, Mary Frances. *A Comparison and Evaluation of Six Elementary Music Courses.* Master's thesis, George Peabody College for Teachers, 1930. 57 p.

445. Barnard, Berenice. "An Experiment in Testing Music Capacity." *Music Supervisors Journal* 18: 54; May, 1932.

446. Bartges, Paul F. *The Melody Method of Teaching Sight Reading of Vocal Music versus the Mechanical.* Master's thesis, Pennsylvania State College, 1932. 38 p.

447. Beeson, Francis Hunt. *Methods of Correlating Music with Other Social Subjects.* Master's thesis, University of Southern California, 1928. 103 p.

448. Board, Lorraine M. A. *A Musical Survey Based on an Intensive Analysis of the Thomas Jefferson Platoon School, Glendale, Calif.* Master's thesis, University of Southern California, 1930. 148 p.

449. Bowman, Horace B. *The Standardization of the Kwalwasser-Dykema Tests.* Master's thesis, Syracuse University, 1931.

450. Burns, Samuel T. "An Experiment in Guidance." *Music Supervisors Journal* 19: 41; November, 1932.

451. Burns, Samuel T. "The Value of Prognostic Tests for Instrumental Pupils." *School Music* 31: 6-9; March, 1931.

452. Cameron, Donald O. *An Experiment to Determine the Value of Technical Analysis in Teaching an Appreciation of Music.* Master's thesis, Pennsylvania State College, 1932. 23 p.

453. Church, Esther. "The Use of Tests and Measurements in Grouping Music Students of the Junior High School." *Music Supervisors Journal* 16: 79; December, 1929.

454. Coleman, Satis N. *A Children's Symphony.* New York: Teachers College, Columbia University, 1931. 218 p.

455. Coleman, Satis N. *First Steps in Playing and Composing.* New York: Teachers College, Columbia University, 1930. 112 p.

456. Earhart, Will, and Gatto, Frank M. "An Experimental Study of Creative Work in Public School Music." *Pittsburgh Schools* 8: 44-56; November-December, 1933.

457. Engel, Frederick E. *A Study of Mood Responses to Music of Junior and Senior High School Students on the Basis of Selection and Sex.* Master's thesis, Syracuse University, 1933.

458. Erlanson, Paul A. *A Study of Some Personality Traits of Music Students.* Master's thesis, Syracuse University, 1933.

459. Ewbank, H. L. "A Wisconsin Experiment in Radio Teaching." *Music Supervisors Journal* 17: 29; December, 1930.

460. Farnsworth, P. R. "Psychology and Music." *School Music* 32: 3-4; November, 1932.

461. Gardner, Anna E. *A Study of Certain Phases of Musical Ability in Young Children of Different Nationalities.* Master's thesis, New York State College for Teachers, 1930.

462. Gildersleeve, Glenn. *Musical Achievement Test, Grades 4-8.* New York: Teachers College, Columbia University.

463. Gray, C. T., and Bingham, C. W. "A Comparison of Certain Phases of Musical Ability of Colored and White Public School Pupils." *Journal of Educational Psychology* 20: 501-6; October, 1929.

464. Harrison, Margaret. "Testing the Appreciation Hour in Rural Schools." *Music Supervisors Journal* 18: 37, 43; December, 1931.

465. Haveson, Sophia. *Musical Ability of Sixth Grade Pupils in Minneapolis.* Master's thesis, University of Minnesota, 1930. 74 p.

466. HIGHSMITH, J. A. "Selecting Musical Talent." *Journal of Applied Psychology* 13: 486-93; October, 1929.
467. JACOBSEN, O. IRVING. "The Influence of Hearing Defects." *Music Supervisors Journal* 19: 24-25; March, 1933.
468. JACOBSEN, O. IRVING. "Methods of Research in Reading Music." *Supervisors Service Bulletin* November-December, 1931.
469. *Kelsey Standardized Tests of Musical Accomplishment.* Thesis published by G. A. Gregory Co., Cincinnati, Ohio.
470. KITTLE, J. LESLIE. "Music Education and Scientific Research." *Music Supervisors Journal* 18: 37; May, 1932.
471. KWALWASSER, JACOB, and DYKEMA, PETER. *Manual of Directions for Victor Records—K-D Tests.* New York: Carl Fischer, 1930.
472. LARSON, W. S. "Measurement of Musical Talent for the Prediction of Success in Instrumental Music." *University of Iowa Studies in Psychology, No. 13.* Psychological Monographs, Vol. 40, No. 1. Whole No. 181. Princeton, N. J.: Psychological Review Co., 1930. p. 33-73.
473. MUSIC TEACHERS' NATIONAL ASSOCIATION. "Report of the Committee on Tests and Measurements." *Proceedings, 1930.* Oberlin, Ohio: the Association (O. W. Demmler, treas.), 1930. p. 264-68.
474. NELSON, JOHN FRED. *Relation of Mental Ability to Musical Ability.* Master's thesis, University of Colorado, 1932.
475. OTTERSTEIN, ADOLPH, and MOSHER, RAYMOND M. *O-M Sight-Singing Test.* Stanford University, Calif.: Stanford University Press, 1932.
476. PHILLIPS, MABEL GROSSMAN. *A Case Study of the Monotone Problem in the Junior High School.* Master's thesis, Indiana State Teachers College, 1929. 95 p.
477. PIERCE, ANNE E. "Music." *Instruction in Music and Art.* U. S. Dept. of the Interior, Office of Education, Bulletin 1932, No. 17. National Survey of Secondary Education, Monograph No. 25. Washington, D. C.: Government Printing Office, 1933. Part I, p. 1-43.
478. PORTER, RAYMOND WILLIS. *A Study of the Musical Talent of Chinese Attending Public Schools in Chicago.* Doctor's thesis, University of Chicago, 1931. 167 p.
479. RODGERS, FRANCES. "Variations in Aesthetic Environment of Artistic and Non-artistic Children." *University of Iowa Studies in Psychology, No. 18.* Psychological Monographs, Vol. 45, No. 1. Whole No. 200. Princeton, N. J.: Psychological Review Co., 1933. p. 95-107.
480. ROSS, VERNE R. *The Relations between Intelligence, Scholastic Achievement, and Musical Talent of Three Racial Groups.* Doctor's thesis, University of Southern California, 1931. 285 p.
481. SEASHORE, CARL E., editor. *The Vibrato.* Studies in the Psychology of Music, Vol. I. Iowa City: University of Iowa, 1932. 382 p.
482. SEASHORE, CARL E. "What Is Musical Ability? *Child Study* 9: 11; September, 1931.
483. STANTON, HAZEL M., and KOERTH, WILHELMINA. *Musical Capacity Measures of Adults Repeated after Music Education.* University of Iowa Studies, Series on Aims and Progress of Research, First Series No. 189, No. 31. Iowa City: the University, October, 1930. 18 p.
484. STREEP, ROSALIND. "A Comparison of White and Negro Children in Rhythm and Consonance." *Journal of Applied Psychology* 15: 53-71; February, 1931.
485. TEST, FLORA C. *A Study of the Predictive Value of Tests in a Music School.* Master's thesis, Syracuse University, 1931.
486. WEINSTEIN, MAX. "The Development of Individual Powers, Talents and Aptitudes in the Public Schools of the City of New York." *Brooklyn Teacher* 11: 10-12; September, 1931.
487. WHITLEY, MARY T. "A Comparison of the Seashore and the Kwalwasser-Dykema Music Tests." *Teachers College Record* 33: 731-51; May, 1932.
488. WILLIAMS, C. O. "A Critique of Measures of Musical Talent." *Music Supervisors Journal* 16: 67-81, 95; October, 1929.
489. WOLNER, MANUEL, and PYLE, W. H. "An Experiment in Individual Training of Pitch-Deficient Children." *Journal of Educational Psychology* 24: 602-8; November, 1933.

490. ALBERTY, LUMAN H. *Analytical Selection and Evaluation of Auto Related Subject-Matter for Auto Trade Classes.* Master's thesis, University of Wisconsin, 1931.

491. ALDERSON, GLENN A. *Trends in the Industrial Arts Teacher-Training Curricula for the Past Ten Years.* Master's thesis, Iowa State College, 1932. 52 p.

492. AMERICAN VOCATIONAL ASSOCIATION, COMMITTEE ON STANDARDS. *Standards of Attainment in Industrial-Arts Teaching.* Washington, D. C.: the Association (L. H. Dennis, sec., 1010 Vermont Ave.), 1931. 31 p.

493. BAUERSFELD, ALBERT. "Industrial Arts Education in Large City High Schools." *Education* 52: 587-89; June, 1932.

494. BERGSTROM, JOHN A. *Correlative Constants in the Major Fields of Woodwork.* Master's thesis, Iowa State College, 1933.

495. BOTTENSLOG, FRED G. *Home Mechanics Based on Home Repairs in Asheville, N. C.* Master's thesis, George Peabody College for Teachers, 1931. 61 p.

496. CASWELL, WILLIAM E. *Selecting the Units for the Secondary School Industrial Arts Program.* Master's thesis, Ohio State University, 1932. 58 p.

497. CHRISTOPHERSON, CLARENCE H. *State Courses in the Industrial Arts.* Master's thesis, University of Minnesota, 1933.

498. COLLINS, KATHERINE K. *A Critical Survey of Occupational Exploratory Courses in the Junior High Schools of Los Angeles.* Master's thesis, University of Southern California, 1931. 134 p.

499. ELLINGSON, MARK. "Activity Analysis as a Basis for Course Content." *Personnel Journal* 12: 12-15; June, 1933.

500. FINK, CHARLES. *Judgments of Alumni Concerning the Vocational Value of the Courses Offered by Three Technical High Schools in Chicago.* Master's thesis, Northwestern University, 1932.

501. FLEMING, RALPH. "Industrial-Arts Practice in Nine Large Cities." *Industrial Education Magazine* 35: 9; July, 1933.

502. GILSON, JOHN G. *Content for a Course in Related Science for Woodworkers.* Master's thesis, Iowa State College, 1933.

503. HALE, WILLIAM P. *Mechanical Drawing Content Based on Consumers' Needs.* Master's thesis, Iowa State College, 1932. 65 p.

504. HARTMAN, HARRY V. *Organization and Content of Courses in Auto Mechanics for Junior and Senior High Schools.* Master's thesis, Iowa State College, 1931. 73 p.

506. JACKEY, DAVID F. *An Evaluation of the Basic Curriculum of Vocational Teacher-Training in Trade and Industrial Education in the State of California.* Doctor's thesis, University of Pittsburgh, 1933.

507. JENNINGS, ROYAL F. *Current Changes in Automotive Service Occupations.* Master's thesis, University of Minnesota, 1932.

508. KOOS, LEONARD V. "Trends in Secondary-School Programs of Studies." *School Review* 41: 497-507; September, 1933.

509. KUSHMA, MICHAEL S. *Teaching Related Science.* Master's thesis, Pennsylvania State College, 1933.

510. LACY, FREDERICK J. *An Objective Curriculum in Industrial Arts Education for West Virginia State College.* Master's thesis, University of Wisconsin, 1931.

511. MCKEE, LYNN C. *A Trade-School Curriculum in Automobile Mechanics and Related Subjects.* Master's thesis, Duke University, 1930.

512. MANUAL ARTS CONFERENCE, SPECIAL RESEARCH COMMITTEE. *Annotated List of 800 Graduate Theses and Dissertations in Industrial-Arts Education, and Vocational-Industrial Education Accepted by Institutions of Higher Learning in the United States, 1892-1933.* Peoria, Ill.: Manual Arts Press, 1933. 89 p.

513. PITTSBURGH PUBLIC SCHOOLS, DEPARTMENT OF CURRICULUM STUDY. *Courses of Study for Experimentation,* 1931-1933.

514. PREBBLE, FRED. *Organized Material for Curricula in Home Economics for Boys.* Master's thesis, Iowa State College, 1933.

515. RICHARDS, EDWARD E. *A General Shop Course of Study for the Junior High School.* Master's thesis, University of Wisconsin, 1933.

516. STRUBE, PAUL E. *A Study of Content for High-School Farm-Shops.* Master's thesis, Ohio State University, 1932. 84 p.

517. TORGERSON, ROLAND. *Unit Operations in Junior High School Woodwork.* Master's thesis, University of Minnesota, 1931.

518. VOTH, JOHN J. *An Analysis of Mechanical Drawing Textbooks Used in Iowa High Schools for the Purpose of Determining a Reading Vocabulary for Mechanical Drawing.* Master's thesis, Iowa State College, 1933.

519. WALDECK, PHILIP S. *Content of Junior High School General Metal Work.* Master's thesis, University of Washington, 1931. 91 p.

Home Economics

520. ADAMS, LUCY. "Objectives in Teaching Family Relationships: II. Opinions of Rural Women." *Journal of Home Economics* 24: 121-25; February, 1932.

521. AMIDON, EDNA P. *The Teaching of Science Related to the Home.* Federal Board for Vocational Education Bulletin, No. 158. Washington, D. C.; Government Printing Office, 1931. 126 p.

522. ARNQUEST, INEZ F., and ROBERTS, EVELYN H. *The Present Use of Time by Farm Homemakers.* Agricultural Experiment Station Bulletin No. 234. Pullman, Wash.: State College of Washington, 1929. 31 p.

523. BEEMAN, MARY. "A Brief Study of the Interests of High School Girls in Home Activities." *Journal of Home Economics* 21: 900-4; December, 1929.

524. BLAZIER, FLORENCE. *Home Economics Education Courses in the Seventy-two Institutions Approved for Teacher-Training by the Federal Board for Vocational Education.* Doctor's thesis, University of Minnesota, 1932. 352 p.

525. CATE, AURELIA B. *Results of Health Habit and Health Knowledge Tests.* Millsboro, Del.: Red Arrow Press, 1933. 89 p.

526. CHILD, ALICE M.; NILES, KATHRYN B.; and KOLSHORN, AGNES. *Food Preparation Studies.* New York: John Wiley and Sons, 1932. 156 p.

527. CLARK, M. RUTH, and GRAY, GRETA. *The Routine and Seasonal Work of Farm Women.* Agricultural Experiment Station Bulletin No. 238. Lincoln, Nebr.: College of Agriculture, University of Nebraska, 1930. 39 p.

528. COOK, ROSAMOND C. "Money Management and the Home Economics Curriculum." *Journal of Home Economics* 23: 333-36; April, 1931. (Cites master's thesis by Helen E. Baker, University of Cincinnati, 1930.)

529. COON, BEULAH I. "What Shall We Teach? Selection of Subject Matter in Relation to Activities of Pupils." *Home Economics News* 2: 73; August, 1931.

530. CUNNINGHAM, BESS V., and CONNOR, RUTH. "Suggested Experiments in the Field of Pre-Parental Education." *Teachers College Record* 34: 285-301; January, 1933.

531. DROLLINGER, PAULINE. "Adjusting the Curriculum to Pupil Needs." *Home Economics News* 3: 177, 179; October, 1932.

532. GEHRS, LILLY B. *A Study of Certain Home Management Practices Carried on in Homes of Minnesota High School Girls.* Master's thesis, University of Minnesota, 1927. (Abstract in: *Abstracts of Masters' and Doctors' Theses in Education.*. Educational Research Bulletin No. 4. Minneapolis: Eta Chapter, Phi Delta Kappa, University of Minnesota, 1932. p. 16.)

533. HADLEY, LAURA B. "Objectives in Teaching Family Relationships: III. Opinions of Mothers." *Journal of Home Economics* 24: 125-28; February, 1932.

534. HENDERSON, GRACE M. *Rural Home-Making Practices in Salina County, Kansas, as a Basis for a Home-Economics Program.* Master's thesis, University of Chicago, 1931. (Abstract in: *Suggestions for Studies and Research in Home Economics Education.* Federal Board for Vocational Education, Bulletin No. 166. Washington, D. C.; Government Printing Office, 1932. p. 60.)

535. HUMPHREY, ALICE W. "A Study of Certain Leisure Time Activities and Financial Practices in the Homes of Minnesota High-School Girls." *Abstracts of Unpublished Masters' Theses in the Field of Secondary-School Administration.* Bulletin No. 47. Berwyn, Ill.: Department of Secondary-School Principals, National Education Association(H. V. Church, sec.), March, 1933. p. 21-23.

536. KNEELAND, HILDEGARDE. "Leisure of Home-Makers Studied for Light on Standards of Living." *Yearbook of Agriculture,* 1932. Washington, D. C.: Government Printing Office, 1932. p. 562-64.

537. Lee, Ata. *A Course in Science Related to the Home.* Frankfort, Ky.: State Department of Education, 1931. 60 p.
538. Lindquist, Ruth. *The Family in the Present Social Order.* Chapel Hill, N. C.: University of North Carolina Press, 1931. 240 p.
539. Lindquist, Ruth. *A Study of Home Management in its Relation to Child Development.* Joint Issue of *The Candle* and *Omicron Nu Magazine*, Fall, 1929. 120 p.
540. McArthur, Laura J. "A Study of the Home and Family Situations of High-School Girls." *Abstracts of Unpublished Masters' Theses in the Field of Secondary-School Administration.* Bulletin No. 47. Berwyn, Ill. Department of Secondary School Principals, National Education Association (H. V. Church, sec.), March, 1933. p. 24-26.
541. Maclary, Dorothy. *A Study of Curricula in Thirty-two Representative Institutions To Determine Typical Courses, Curricular Practices, and Methods of Teaching in the Education of Home Economics Teachers.* Unpublished thesis, University of Minnesota, 1933.
542. Monroe, Day. *Chicago Families; a Study of Unpublished Census Data.* Chicago: University of Chicago Press, 1932. 344 p.
543. Nofsker, Julia F. "Home Economics Objectives as Shown in a Survey of Educational Literature." *Journal of Home Economics* 24: 353-64; April, 1932.
544. Parker, Dolpha. *Out-of-School Learning in Home Economics.* Master's thesis, University of Colorado, 1930. (Abstract in: *University of Colorado Studies*, Vol. 18, No. 2, October, 1930.
545. Pattison, Mattie. *The Relationship between Age and Environment and the Home Activities of Boys and Girls.* Unpublished thesis, University of Chicago, 1930.
546. Payne, Reseda B. *Investigation into the Buying Experiences of Fifth and Sixth Grade Girls at Jackson School.* Master's thesis, University of Cincinnati, 1932. 110 p.
547. Peterson, Bertha V., and Brown, Clara M. "Home Economics in Schools for the Deaf and the Marital and Occupational Status of Their Alumnae." *American Annals of the Deaf* 78: 192-200; May, 1933.
548. Phillips, Velma. *Evidence of the Need of Education for Efficient Purchasing.* Contributions to Education, No. 447. New York: Teachers College, Columbia University, 1931. 109 p.
549. President's Conference on Home Building and Home Ownership. *Household Management and Kitchens.* Washington, D. C.: National Capital Press, 1932. 228 p.
550. President's Research Committee on Social Trends. *Recent Social Trends in the United States.* New York: McGraw-Hill Book Co., 1933. Chapters 3, 4, 8, 13, 15, 18, and 24.
551. Rhyan, Ivah M. "Home Problems for Boys." *Journal of Home Economics* 22: 191-96; March, 1930.
552. Russell, R. D.; McFarland, Muriel; and Williamson, Mary. *Summary of Studies in Home Economics.* Home Economics for Junior and Senior High Schools. Boise, Idaho: State Board for Vocational Education, 1932. p. 7-12.
553. Sherbon, Florence B., and Ferris, Emily. *The Experience and Opinions of 350 Married Women Graduates of the University of Kansas.* Kansas Studies in Education, Vol. 2, No. 2. Lawrence, Kans.: University of Kansas, 1931. 30 p.
554. Sorokin, P. A.; Zimmerman, C. C.; and Galpin, C. J. *Systematic Source Book in Rural Sociology.* Minneapolis: University of Minnesota Press, 1930-32. 3 vols.
555. Thomas, Sybil. *Homemaking Objectives for 10th and 11th Grade Boys.* Master's thesis, Iowa State University, 1931. (Abstract in: *Suggestions for Studies and Research in Home Economics Education.*. Federal Board for Vocational Education, Bulletin No. 166. Washington, D. C.: Government Printing Office, 1932. p. 61.)
556. Thompson, Alice E. *A Study of the Practices in the Homes of High School Girls in Minnesota Relative to the Care and Repair of Clothing.* Master's thesis, 1931. (Abstract in: *Abstracts of Masters' and Doctors' Theses in Education.* Educational Research Bulletin No. 4. Minneapolis: Eta Chapter, Phi Delta Kappa, University of Minnesota, 1932. p. 20.)

557. Turner, Marcia E., and Hall, Mabel M. "Objectives for High School Courses in Home Relationships." *Journal of Home Economics* 23: 238-42; March, 1931.
558. Wasson, Grace E. *Use of Time by South Dakota Farm Homemakers.* Bulletin No. 247. Brookings, S. Dak.: State College of Agriculture and Mechanic Arts, 1930. 29 p.
559. Welch, Lila M. "Description of Studies Used as a Basis for These Courses of Study. Home-making Grades 7 to 12." *Home Economics Bulletin* No. 10. Oklahoma City, Okla.: State Department of Education, 1933. p. 7-10.
560. Wilson, Mary A. *A Study of Homemaking Activities of Girls in Rural Mississippi.* Bulletin No. 65. Jackson, Miss.: State Board for Vocational Education, 1931. 64 p.
561. Wilson, Maude. *Use of Time by Oregon Farm Homemakers.* Experiment Station Bulletin No. 256. Corvallis, Ore.: Oregon Agricultural College, 1929. 70 p.
562. Woodhouse, Chase Going. "A Study of 250 Successful Families." *Social Forces* 8: 511-32; June, 1930.

Commercial Education

563. Brewer, Elwood H. *Determinants in Commercial Course Selection by Chicago Public School Students.* Unpublished Honors Report, School of Business, University of Chicago, June, 1933.
564. Brewington, Ann. "Procedures for Determining the Secretarial Duties to Be Included in a Course for College Students." *Journal of Business of the University of Chicago* 6: 328-45; October, 1933.
565. California State Department of Education. *Aims and Desired Outcomes of Typewriting Instruction in California Secondary Schools.* Bulletin No. 8. Sacramento: the Department, 1933. 9 p.
566. Carmichael, Vernal H. "Objective Measurement of Accomplishment in Typewriting of High School Commercial Pupils in Indiana." *Research Studies in Commercial Education, V.* University of Iowa Studies in Education, Vol. 8, No. 3. Monographs in Education, No. 12. Iowa City: the University, 1932. p. 125-35.
567. Cassin, Kathryn. *Percentage of Commercial Drop-Outs Who Entered Senior High School from Woodrow Wilson Junior High.* San Jose, Calif.: City Schools, 1931.
568. Chicago Public Schools. *Beginning Office Work for Girls.* Occupational Studies No. 5. Chicago: Vocational Guidance Bureau, Board of Education, 1931.
569. Cooper, Edward L. "A Survey of the Effects of Single and Double Periods in Bookkeeping." *Research Studies in Commercial Education, V.* University of Iowa Studies in Education, Vol. 8, No. 3. Monographs in Education, No. 12. Iowa City: the University, 1932. p. 75-92.
570. Coxe, W. W. *Appraisal of Secondary Education in New York State by Pupils and Former Pupils.* Educational Monograph No. 1. Albany, N. Y.: New York State Teachers Association, 1932. 59 p.
571. Fisher, John Edwin. *Community Needs as the Basis for a High-School Commercial Course.* Master's thesis, University of Chicago, 1931. 91 p.
572. Graham, Jessie. "Present-Day Business Requirements." *Journal of Business Education* 9: 13-14, September; 23-24, October, 1933.
573. Gray, Ruth A., compiler. *Bibliography of Research Studies in Education, 1931-1932.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1933, No. 6. Washington, D. C.: Government Printing Office, 1933. p. 217-22.
574. Gray, Ruth A., compiler. *Bibliography of Research Studies in Education, 1932-1933.* To be published in 1934 as a bulletin of the Office of Education, U. S. Department of the Interior, Washington, D. C.
575. Greer, Howard C. *The Present Status of Accounting Teaching.* Unpublished study, School of Business, University of Chicago, March, 1933.
576. Hand, Harold C. *Extent to Which High School Students Learn the Content of Junior Business Training without Taking the Course.* Unpublished study at Teachers College, Columbia University, 1932.
577. Hartford Public Schools. *Summary of Information Contributed by Business Houses in the City of Hartford.* Hartford, Conn.: Board of Education, 1931. 44 p. (Mimeographed.)

578. Helmstadter, Carl W. "Some Trends in Commercial Education in Nebraska *High Schools.*" *Educational Research Record (University of Nebraska)* 4: 99, 102; February, 1932.

579. Jacobsen, E. W. *Educational Opportunities Provided for Post-Graduate Students in Public High Schools.* Contributions to Education, No. 523. New York: Teachers College, Columbia University, 1932. 73 p.

580. Jones, Lloyd L. "Building Clerical Courses on Facts." *Research Studies in Commercial Education, V.* University of Iowa Studies in Education, Vol. 8, No. 3. Monographs in Education, No. 12. Iowa City: the University, 1932. p. 35-41.

581. Jones, Lloyd L. "What Clerical Tests Are Trying To Measure in Business, in Civil Service and in Commercial Classes." *Research Studies in Commercial Education, V.* University of Iowa Studies in Education, Vol. 8, No. 3. Monographs in Education, No. 12. Iowa City: the University, 1932. p. 42-47.

582. Kibby, Ira W. *A Study of Typewriting Accomplishments in California Secondary Schools.* Sacramento, Calif.: State Department of Education, March, 1933. (Mimeographed.)

583. King, W. Harry. *Commercial Subjects in Rural High Schools.* Washington, D. C.: Government Printing Office, 1933. 14 p. (Address delivered before the American Vocational Association, December 8, 1932.)

584. Kirk, John G. *What Quality of Handwriting Is Vocationally Acceptable in Selected Business Offices in Philadelphia.* Unpublished study, Division of Commercial Education, Public Schools, Philadelphia, Pa., 1930.

585. Lawrence, R. A., and Judd, D. L. *Fitting the High School Commercial Curriculum to the Needs of the Community.* Greenfield, Mass.: Greenfield High School, 1930.

586. Malott, J. O. "Studies of Achievement in Shorthand, Typewriting and Transcription." *Research Studies in Commercial Education, V.* University of Iowa Studies in Education, Vol. 8, No. 3. Monographs in Education, No. 12. Iowa City: the University, 1932. p. 118-24.

587. Murray, George S. "Graduate Survey; a Follow-up Study of the Graduates of the Commercial High School of New Haven, Conn." *Balance Sheet* 13: 59; October, 1931. Cincinnati: South-Western Publishing Co.

588. Newark Board of Education. *A Report on the Survey of Business Office Workers in Newark, N. J.* Survey made by R. C. Goodfellow, Director of Commercial Education, October, 1930. (Mimeographed.)

589. Oakland Public Schools. *Regional Conference on Business Education Held at Oakland, California, April 29, 1933.* Mimeographed report distributed by Ira W. Kibby, California State Department of Education, Bureau of Business Education, Sacramento, Calif.

590. Oakland Public Schools. *Relative Ability of Students in Various Curricula in Oakland High Schools.* Oakland, Calif.: Division of Research, Public Schools, 1932. (Mimeographed.)

591. Odell, William R. "An Appraisal of Secondary School Commercial Education." *Teachers College Record* 34: 43-52; October, 1932.

592. Philadelphia Board of Education. *Report of the Division of Commercial Education for the Year Ended June 30, 1932.* Philadelphia: the Board, 1932. 31 p.

593. Pittsburgh Public Schools, Committee on Bookkeeping. "Occupational Survey of Commercial Graduates, Drop-Outs, and Evening School Pupils, Pittsburgh High Schools." *Curriculum Study and Educational Research Bulletin* 4: 164-82; March-April, 1930.

594. Shields, H. G. "Overlapping in Secondary School Elementary Economics." *Research Studies in Commercial Education, V.* University of Iowa Studies in Education, Vol. 8, No. 3. Monographs in Education, No. 12. Iowa City: the University, 1932. p. 22-34.

595. Shields, H. G. *Status of Junior College Business Education.* Unpublished study made at the School of Business, University of Chicago, 1932.

596. Soper, W. W., and Coxe, W. W. *Trends in Secondary Education.* University of the State of New York Bulletin No. 961. Albany, N. Y.: State Education Department, 1930. p. 59-61.

597. South-Western Publishing Co. *A Survey of Needs and Trends in Bookkeeping.* Monograph 19. Cincinnati: the Author, 1932.

598. SUMRALL, F. H. *A Study of Curriculum Practices in Commercial Departments of State Teachers Colleges.* Unpublished study, Grove City College, 1933.
599. TRAXLER, BINA MAE. *A Follow-up Study of Commercial Graduates.* Master's thesis, Northwestern University, 1930. (Published as Monograph 13 by the South-Western Publishing Co., Cincinnati, Ohio.)
600. TRICKEY, MERLE. "A Follow-Up of All High School Graduates of Oskaloosa, Iowa (1925 to 1929)." *Research Studies in Commercial Education V.* University of Iowa Studies in Education, Vol. 8, No. 3. Monographs in Education, No. 12. Iowa City: the University, 1932. p. 57-67.
601. TYRELL, DORIS. "An Activity Analysis of Secretarial Duties as a Basis for an Office Practice Course." *Journal of Experimental Education* 1: 323-40; June, 1933.
602. UNGER, EDNA W., and BURR, EMILY T. *Minimum Mental Age Levels of Accomplishment; a Study of Employed Girls of Low-Grade Intelligence.* Albany, N. Y.: State Education Department, 1931. p. 64-71.
603. WALTERS, R. G., and OTHERS. "Survey of Commercial Education in Northwestern Pennsylvania. Pennsylvania State Education Association." *Bulletin of the Western Pennsylvania Commercial Education Association,* 1931.
604. WANOUS, SAMUEL J. "A Plan for Vocational Guidance through Junior Business Training." *Research Studies in Commercial Education, V.* University of Iowa Studies in Education, Vol. 8, No. 3. Monographs in Education, No. 12. Iowa City: the University, 1932. p. 73-74.
605. WEIR, OSBY LEE. *A Survey of Accounting Courses and Instruction in Collegiate Schools of Business.* Unpublished Honors Report, School of Business, University of Chicago, May, 1933.
606. WESSELS, O. R. "A Job Analysis of Bookkeeping Duties of Executives." *Research Studies in Commercial Education, V.* University of Iowa Studies in Education, Vol. 8, No. 3. Monographs in Education, No. 12. Iowa City: the University, 1932. p. 93-104.
607. WILLIAMS, RACHEL, and YOUNG, OPAL. *Basic Business Information and Skills Needed by Every Individual Based on an Investigation among Retail Business Men.* Unpublished report, Department of Commercial Education, Colorado State Teachers College, 1930.
608. *Wisconsin State-Wide Commercial Education Survey.* Bulletin, Serial No. 158. Whitewater, Wis.: State Teachers College, January, 1931.
609. WRIGHT, EDITH A., compiler. *Bibliography of Research Studies in Education, 1929-1930.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1931, No. 13. Washington, D. C.: Government Printing Office, 1931. p. 381-87.
610. WRIGHT, EDITH A., and GRAY, RUTH A., compilers. *Bibliography of Research Studies in Education, 1930-1931.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 16. Washington, D. C.: Government Printing Office, 1932. p. 351-60.
611. YOUNG, BESSIE A. "The Relative Efficiency of Single and Double Periods in Typewriting." *Research Studies in Commercial Education, V.* University of Iowa Studies in Education, Vol. 8, No. 3. Monographs in Education, No. 12. Iowa City: the University, 1932. p. 136-48.
612. YOUNG, SHEPHERD. "An Occupational Survey of the Commercial Graduates of the Three High Schools of Terre Haute, Indiana." *Research Studies in Commercial Education, V.* University of Iowa Studies in Education, Vol. 8, No. 3. Monographs in Education, No. 12. Iowa City: the University, 1932. p. 48-56.
613. ZIMMERMAN, E. L. *Survey of Business Needs and Demands of Huntington, West Virginia, Business Establishments.* Huntington, W. Va.: Public Schools, 1932. Unpublished study.

Studies in Extra-Curriculum Activities Bearing on the Curriculum

614. ASTELL, LOUIS A., and ODELL, CHARLES W. *High School Science Clubs.* University of Illinois Bulletin, Vol. 29, No. 39. Educational Research Bulletin No. 60. Urbana, Ill.: the University, 1932. 77 p.
615. BRAMMELL, P. ROY. *Intramural and Interscholastic Athletics.* U. S. Dept. of the Interior, Office of Education, Bulletin 1932, No. 17. National Survey of Secondary Education, Monograph No. 27. Washington, D. C.: Government Printing Office, 1933. 143 p.

616. Brown, Marion A. *Leadership among High School Pupils.* Contributions to Education, No. 559. New York: Teachers College, Columbia University, 1933. 166 p.

617. Carter, Thomas E. "Activities of College Students." *Phi Delta Kappan* 15: 54-58, 62; August, 1932.

618. Clem, Orlie M., and Dodge, Seward B. "The Relationship of High-School Leadership and Scholarship to Post-School Success." *Peabody Journal of Education* 10: 321-29; May, 1933.

619. Dudycha, George J. "The Beliefs of College Students Concerning the Athlete and the Scholar." *School and Society* 36: 123-28; July 23, 1932.

620. Elam, Margaret Jewell. *An Appraisal of Programs of Co-Curricular Activities.* Master's thesis, George Peabody College for Teachers, 1930. 98 p. (Abstract in: *Bulletin No. 43.* Berwyn, Ill.: Department of Secondary-School Principals, National Education Association (H. V. Church, sec.), December, 1932. p. 39-41.

621. Ewart, Frank Carman. "Are Phi Beta Kappas Grinds?" *Journal of Higher Education* 2: 36-38; January, 1931.

622. Garrison, K. C. "A Study of Some Factors Related to Leadership in High School." *Peabody Journal of Education* 11: 11-17; July, 1933.

623. Gilchrist, Robert S. "Inadequacy of Training of Secondary-School Teachers and Principals." *School Review* 39: 140-46; February, 1931.

624. Ginder, Vera Mae. *The Relation of Participation in Extra-Curricular Activities to Intelligence, Achievement, College Marks, and Placement.* Master's thesis, Northwestern University, 1932. (Summarized in: *Abstracts of Masters' Theses in Education.* Contributions to Education, School of Education Series, No. 10. Evanston, Ill. Northwestern University, 1933.)

625. Grant, Daniel L. "The Social Fraternity." *School and Society* 33: 229-33; February 14, 1931.

626. Harris, Daniel. *The Relation to College Grades of Some Factors Other than Intelligence.* Archives of Psychology, No. 131. New York: Columbia University, 1931. 55 p.

627. Hayes, Wayland J. "Recording the Extra-Class Activities of High-School Pupils." *School Review* 39: 439-48; June, 1931.

628. Hayes, Wayland, J. *Some Factors Influencing Participation in Voluntary School Group Activities.* Contributions to Education, No. 419. New York: Teachers College, Columbia University, 1930. 82 p.

629. Hindmarsh, A. E. "Scholarships and Athletes." *North Central Association Quarterly* 5: 340-44; December, 1930.

630. Jacobsen, John M. "Athletics and Scholarship in the High School." *School Review* 39: 280-87; April, 1931.

631. McCoy, Myra L. "Standards in High-School Journalism." *English Journal (H. S. Ed.)* 19: 788-94; December, 1930.

632. Maney, Charles A. "The Grades of College Football Students." *School and Society* 38: 307-8; September 2, 1933.

633. Mehus, O. Myking. "Extracurricular Activities and Academic Achievement." *Journal of Educational Sociology* 6: 143-49; November, 1932.

634. Miller, L. Paul. "School Journeys and School Journalism." *Junior-Senior High School Clearing House* 5: 229-31; December, 1930.

635. Patton, Leslie K. "Undergraduate Student Reports." *Journal of Higher Education* 3: 285-93; June, 1932.

636. Reavis, William C. "Interscholastic Non-athletic Activities in Selected Secondary Schools." *School Review* 41: 417-28; June, 1933.

637. Smith, George B. *The Relation between Participation in Student Activities in High School and in the University.* Master's thesis, University of Minnesota, 1930. (Abstract in: *Bulletin No. 47.* Berwyn, Ill.: Department of Secondary-School Principals, National Education Association (H. V. Church, sec.), May, 1933. p. 55-56.)

638. Wetzel, William, A. "Characteristics of Pupil Leaders." *School Review* 40: 532-34; September, 1932.

639. Whitney, F. L., and Armentrout, W. D. "The Total Load of Students." *Journal of Higher Education* 3: 427-30; November, 1932.

Chapter III. Evaluation of Courses of Study and Textbooks

640. BACHMAN, FRANK P., director. *Public Schools of Nashville, Tennessee; a Survey Report.* Nashville, Tenn.: George Peabody College for Teachers, 1931. 373 p.

641. BEAUCHAMP, WILBUR L. *Instruction in Science.* U. S. Department of the Interior, Office of Education, Bulletin 1932, No. 17. National Survey of Secondary Education, Monograph No. 22. Washington, D. C.: Government Printing Office, 1933. 63 p.

642. BLAUCH, LLOYD E. "Curriculum Surveys in Higher Education." *Journal of Higher Education* 4: 255-60; May, 1933.

643. BUCKINGHAM, B. R. "The Scientific Development and Evaluation of Textbook Materials." *Official Report, 1933.* Washington, D. C.: Department of Superintendence, National Education Association, 1933. p. 159-66.

644. BUFFALO MUNICIPAL RESEARCH BUREAU. *Report of the Buffalo School Survey.* Buffalo: the Bureau, 1931. 2 vols.

645. BURR, SAMUEL ENGLE. "Selection of Textbooks and the Use of Textbook Rating Scales." *American School Board Journal* 79: 130; August, 1929.

646. CALIFORNIA STATE DEPARTMENT OF EDUCATION. *Evaluation of Arithmetic Textbooks.* Bulletin No. 19. Sacramento, Calif.: the Department, 1932. 28 p. (Prepared by I. V. Waterman.)

647. CAMPBELL, CARL G. "Evaluating General Chemistry Texts." *Journal of Chemical Education* 8: 2404-7; December, 1931.

648. COLLINGS, ELLSWORTH. "Learning the Fundamentals in the Activity Curriculum." *Journal of Experimental Education* 1: 309-15; June, 1933.

649. CRAMER, JOHN FRANCIS. "Relative Difficulty of Junior High-School Social Studies Texts." *Journal of Educational Research* 26: 425-28; February, 1933.

650. DAVIS, MRS. DAVID R. "A Comparative Study of Text Books in Junior High School Mathematics." *High School* 8: 103-14; February, 1931. Eugene, Ore.: University of Oregon.

651. DONOVAN, JOHN J. "Selecting Primers for Non-English-Speaking Children." *Elementary School Journal* 32: 30-33; September, 1931.

652. DUDLEY, MARION S. *An Evaluation of Junior High School American History Textbooks and the Preparation of a List of Textbooks To Be Used in This Line.* Master's thesis, Indiana State Teachers College, 1933. 74 p. (Abstract in: *Teachers College Journal* 4: 308-10; July, 1933.)

653. EDDY, HELEN M. *Instruction in Foreign Languages.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 24. Washington, D. C.: Government Printing Office, 1933. 61 p.

654. ELIASSEN, REUBEN H. "Evaluating Courses." *Educational Research Bulletin (Ohio State University)* 11: 14-16, 26; January 6, 1932.

655. ESTROP, ELIZA. *The Attitude of High School Girls toward Home Economics Courses.* Master's thesis, University of Southern California, 1931. 65 p.

656. FREEMAN, ELLEN M. *A Comparative Analysis of Textbooks in Plane Geometry in Use about 1900 and in Recent Years.* Master's thesis, University of Minnesota, 1928. (Abstract in *Abstracts of Masters' and Doctors' Theses in Education.* Educational Research Bulletin No. 1. Minneapolis: Eta Chapter, Phi Delta Kappa, University of Minnesota, 1931. p. 24.)

657. FULLER, FLORENCE D. "Evaluation of Geometry Textbooks." *Los Angeles Edutional Research Bulletin* 10: 5-9; October, 1930.

658. HARAP, HENRY, and BAYNE, A. J. "A Critical Survey of Public School Courses of Study Published 1929 to 1931." *Journal of Educational Research* 26: 46-55, 105-9; September and October, 1932.

659. HARRING, SYDNEY. "What Primer Shall I Use Next?" *Elementary School Journal* 3: 207-13; November, 1931.

660. HERRIOTT, M. E. "Scientific Textbook Selection." *Science Education* 2: 98-105; April, 1933.

661. HERRIOTT, M. E. "The Selection of a Physics Textbook." *Los Angeles Educational Research Bulletin* 10: 15-21; October, 1930.

662. Herriott, M. E. "Textbook Adoption and Evaluation Procedures, Los Angeles Secondary Schools." *Los Angeles Educational Research Bulletin* 10: 2-4; October, 1930.

663. Hopkins, L. Thomas. "Learning Essentials in an Activity Curriculum." *Journal of Experimental Education* 1: 298-303; June, 1933.

664. Howell, Etta; Dunn, Maude W.; and Stoker, Dora. "Measuring the Skills in an Integrated Program." *Journal of Experimental Education* 1: 316-19; June, 1933.

665. Jensen, Frank A. "Current Practices in Selecting Textbooks for the Elementary Schools." *The Textbook in American Education.* Thirtieth Yearbook, Part 2. National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1931. Chapter 7, p. 127-42.

666. Jensen, Frank A. *Current Procedure in Selecting Textbooks.* Philadelphia: J. B. Lippincott Co., 1931. 157 p.

667. Kimmel, William G. *Instruction in the Social Studies.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 21. Washington, D. C.: Government Printing Office. 1933. 105 p.

668. Klein, Arthur J., director. *Survey of Land-Grant Colleges and Universities.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1930, No. 9. Washington, D. C.: Government Printing Office, 1930. 2 vols.

669. Lide, Edwin S. *Instruction in Mathematics.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 23. Washington, D. C.: Government Printing Office, 1933. 72 p.

670. Lide, Edwin S. *Procedures in Curriculum Making.* U. S. Dept of the Interior, Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 18. Washington, D. C.: Government Printing Office, 1933. 99 p.

671. Litherland, Herschel. "Evaluating Teacher-Training Curricula," *Educational Administration and Supervision* 19: 627-34; November, 1933.

672. McCormick, Clarence. *The Teaching of General Mathematics in the Secondary Schools of the United States.* Contributions to Education, No. 386. New York: Teachers College, Columbia University, 1929. Chapter 5, "A Critical Study of Seventh and Eighth Grade Textbooks," p. 53-66.

673. Marye, Mary E. "A Form for Rating Textbooks in English Composition Prepared for the Ninth and Tenth Grades." *School Review* 38: 124-37; February, 1930.

674. Maxwell, C. R. "The Use of Score Cards in Evaluating Textbooks." *The Textbook in American Education.* Thirtieth Yearbook, Part 2. National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1931. Chapter 8, p. 143-62.

675. Mensenkamp, L. E. "Some Desirable Characteristics in a Modern Plane Geometry Text." *The Teaching of Geometry.* Fifth Yearbook, National Council of Teachers of Mathematics. New York: Teachers College, Columbia University, 1930. p. 199-206.

676. Meriam, J. L. "An Activity Curriculum in a School of Mexican Children." *Journal of Experimental Education* 1: 304-8; June, 1933.

677. Merrill, Frances E. *The Formulation of Criteria for the Evaluation of Typewriting Textbooks and a Comparison of Current Typewriting Texts According to the Criteria.* Master's thesis, New York University, 1931. 118 p.

678. National Society for the Study of Education. *The Textbook in American Education.* Thirtieth Yearbook, Part 2. Bloomington, Ill.: Public School Publishing Co., 1931. 364 p.

679. Nettels, Charles H. "Pupils' Reactions to General Science Courses." *Los Angeles Educational Research Bulletin* 11: 1-5, 11; September, 1931.

680. Nettels, Charles H. "The Selection of a Textbook for B8 Science." *Los Angeles Educational Research Bulletin* 10: 10-14; October, 1930.

681. Newlon, Jesse H., and others. "The Curricula of the Chicago Schools." *Report of the Survey of the Schools of Chicago.* Vol. III. New York: Teachers College, Columbia University, 1932. Chapters 1-6, p. 4-112.

682. Newlun, Chester. "The Selection of Basal Readers." *Elementary School Journal* 32: 285-93; December, 1931.

683. PATTY, W. W., and PAINTER, W. I. "Improving Our Method of Selecting High-School Textbooks." *Journal of Educational Research* 24: 23-32; June, 1931.

684. PEIK, W. E. *The Professional Education of High School Teachers.* Minneapolis: University of Minnesota Press, 1930. 184 p.

685. PIERCE, ANNE E., and HILPERT, ROBERT S. *Instruction in Music and Art.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 25. Washington, D. C.: Government Printing Office, 1933. 68 p.

686. REEVES, FLOYD W., and OTHERS. *The Liberal Arts College; Based upon Surveys of Thirty-five Colleges Related to the Methodist Episcopal Church.* Chicago: University of Chicago Press, 1932. 715 p.

687. RIVERS, LILLIAN FRANCES. *An Evaluation of the Commercial Curriculum of the Fullerton Union High School and Junior College in Terms of the Subsequent Experiences of Graduates.* Master's thesis, University of Southern California, 1928. 104 p.

688. ROSE, ELLA J. *A Critical Analysis of Home Economics Textbooks in Secondary Schools, Aiming To Determine Certain Standards for Desirable Characteristics in Such Books.* Master's thesis, University of Minnesota, 1927. (Abstract in *Abstracts of Masters' and Doctors' Theses in Education.* Educational Research Bulletin No. 4. Minneapolis: Eta Chapter, Phi Delta Kappa, University of Minnesota, 1932. p. 19-20.)

689. RUTLEDGE, RICHARD E. "Administrators Consider Textbook Selection." *Nation's Schools* 6: 47-48; December, 1930.

690. SMITH, DORA V., chairman. "Evaluation of Composition Textbooks; Report of National Council Committee." *English Journal* 21: 280-94; April, 1932.

691. SMITH, DORA V. *Instruction in English.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 20. Washington, D. C.: Government Printing Office, 1933. 89 p.

692. SMITH, L. W. "A Quantitative Study of an Activity Program." *Elementary School Journal* 33: 669-77; May, 1933.

693. SOCIETY FOR THE PROMOTION OF ENGINEERING EDUCATION. *Report of the Investigation of Engineering Education, 1923-1929.* Pittsburgh: the Society (F. L. Bishop, sec., University of Pittsburgh), 1930. Vol. I, 1039 p.

694. STRAYER, GEORGE D., director. *Report of the Survey of the Schools of Holyoke, Massachusetts.* Holyoke, Mass.: Holyoke School Department, 1930. Chapter 9.

695. SWEENEY, FRANCES G.; BARRY, E. F.; and SCHOELKOPF, A. E. *Western Youth Meets Eastern Culture.* New York: Teachers College, Columbia University, 1932. p. 192-245.

696. WALTERS, LEE. *Analyses of Seven High School Geography Textbooks.* Master's thesis, Indiana State Teachers College, 1933. (Abstract in *Teachers College Journal* 4: 315-16; July, 1933.)

697. WHIPPLE, GUY M. "The Selection of Textbooks." *American School Board Journal* 80; 51-53, 158; May, 1930.

698. WILLIAMS, L. A. *A Rating Scale by Which Teachers Are to Select Textbooks.* Oakland, Calif.: Public Schools, 1929.

699. WILLIAMS, ROBERT L. "The Selection of Mathematics Texts in the Junior High School." *School Science and Mathematics* 31: 284-91; March, 1931.

700. WILSON, HOWARD E. "Current Curricular Experimentation in the Social Studies." *Historical Outlook* 20: 390-95; December, 1929.

701. WILSON, HOWARD E., and ERB, BESSIE, P. "A Survey of Social-Studies Courses in 301 Junior High Schools." *School Review* 39: 497-507; September, 1931.

Chapter IV. Curriculum Investigations at the Teacher-Training, College, and University Levels

702. ALLEN, HERRON M. "An Evaluation of the Available Training Programs for General Elementary Supervision." *Educational Administration and Supervision* 19: 124-28; February, 1933.

703. Anderson, Earl W., and Eliassen, Reuben H. "High School Home Economics Teachers in the United States." *Journal of Home Economics* 24: 227-29; March, 1932.

704. Anderson, Earl W. "Major and Minor Subjects Taught by Graduates of Colleges of Education." *Educational Administration and Supervision* 18: 327-32; May, 1932.

705. Arnold, Harrison H. "A List of Graded Vocabularies and a Method of Grading." *Modern Language Journal* 16: 644-55; May, 1932.

706. Arnold, Henry J. "Arithmetical Abilities and Disabilities of College Students." *Elementary School Journal* 31: 259-70; December 1930.

707. Arnold, Henry J. "Students' Deficiencies in English." *Educational Research Bulletin* (*Ohio State University*) 10: 295-98, 308; May 27, 1931.

708. Bachman, Frank P. *Education and Certification of Elementary Teachers.* Field Study No. 5. Nashville, Tenn.: George Peabody College for Teachers, 1933. 225 p.

709. Bachman, Frank P. "Present Certification Requirements and Implications for Teachers Colleges." *Educational Administration and Supervision* 19: 97-118; February, 1933.

710. Baker, Gertrude M. "The Supervision of Practice Teaching in Physical Education in Undergraduate Institutions in the United States." *Research Quarterly of the American Physical Education Association* 1: 122-32; December, 1930.

711. Barnes, Harry Grinnell. *A Diagnosis of the Speech Needs and Abilities of Students in a Required Course in Speech Training in the State University of Iowa.* Doctor's thesis, University of Iowa, 1932.

712. Barr, Margaret C. "Résumé of the Physical Education Activity Program in Colleges for Women." *Research Quarterly of the American Physical Education Association* 4: 117-31; October, 1933.

713. Baugher, J. I. *Organization and Administration of Practice-Teaching in Privately Endowed Colleges of Liberal Arts.* Contributions to Education, No. 487. New York: Teachers College, Columbia University, 1931. 127 p.

714. Beatty, Thelma Louise. "A College Course in Family Relationships." *Journal of Home Economics* 24: 133-35; February, 1932.

715. Bengtson, Nels A. "Geography in the Junior College." *The Teaching of Geography.* Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 307-12.

716. Benner, Thomas E., chairman. "Report on the Joliet Junior College Experiment." *North Central Association Quarterly* 8: 216; September, 1933.

717. Berry, Betty Trier. "Improving Freshman Reading Ability." *English Journal* (*Coll. Ed.*) 20: 824-29; December, 1931.

718. Bietry, J. Richard. "The Junior College in Relation to Speech Education." *Quarterly Journal of Speech* 17: 202-16; April, 1931.

719. Billig, Florence Grace. "A Technique for Developing Content for a Professional Course in Science for Teachers in Elementary Schools." *Science Education* 15: 82-90; January, 1931.

720. Blanchard, V. S. "Guiding Principles in Teacher Training from a Public School Point of View." *Research Quarterly of the American Physical Education Association* 3: 81-92; May, 1932.

721. Blauch, L. E., and Russell, John Dale. "College Course Offerings in Bible and Religion." *Religious Education* 28: 374-79; October, 1933.

722. Blazier, Florence E. *Home Economics Education Courses in the 72 Institutions Approved for Teacher Training by the Federal Board for Vocational Education.* Doctor's thesis, University of Minnesota, 1932. 352 p.

723. Bond, Otto F. "Adapting Instruction in the Modern Languages to Individual Needs." *Provision for the Individual in College Education.* Proceedings, 1932. Institute for Administrative Officers of Higher Institutions. (Edited by W. S. Gray.) Chicago: University of Chicago Press, 1932. p. 132-43.

724. Brammell, P. Roy. *Articulation of High School and College.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 17. National Survey of Secondary Education, Monograph No. 10. Washington, D. C.: Government Printing Office, 1933. 96 p.

725. Bray, Willis J. "The Nomenclature of Biology Courses in Teachers Colleges." *Science Education* 17: 233-35; October, 1933.

726. BROWN, FRANCIS J. "An Evaluation of Extra-mural Courses." *Educational Administration and Supervision* 18: 13-20; January, 1932.
727. BRUECKNER, LEO J.; WHITE, LESLIE D.; and DICKEMAN, FRED. *A Curriculum Study of Teacher Training in Arithmetic.* Minneapolis: University of Minnesota Press, 1932. 28 p.
728. BUCK, WALTER. "The Orientation Course in Teachers Colleges." *School and Society* 32: 640-41; November 8, 1930.
729. CARPENTER, W. W. "Curricular Offerings in Missouri." *Junior College Journal* 2: 16-23; October, 1931.
730. CEDERSTROM, J. A. "The Influence of a Secondary Course in Zoology upon Gains in College Zoology." *Journal of Educational Research* 24: 57-61; June, 1931.
731. CLARK, JUDITH. "Education at the College Level for Marriage, Parenthood, and Family Life." *Journal of the American Association of University Women* 24: 132-35; April, 1931.
732. CLASS, EDWARD W. *Prescription and Election in Elementary-School Teacher-Training Curricula in State Teachers Colleges.* Contributions to Education, No. 480. New York: Teachers College, Columbia University, 1931. 92 p.
733. CLEMENT, J. A., and BOE, OLIVER. "A Study in Secondary School Supervision Relative to Courses Offered in Higher Institutions of Learning." *Educational Administration and Supervision* 16: 705-13; December, 1930.
734. COLEMAN, A. P. "The Basic Vocabulary in Polish." *Modern Language Journal* 16: 140-46; November, 1931.
735. CONE, CLARA LEE. "A Study of Home Economics in the Training of Handicapped Children." *Journal of Home Economics* 23: 732-35; August, 1931.
736. CONGER, N. *A Study of the Content of Professional Courses in Education in Institutions of Higher Learning in Oklahoma.* Bulletin No. 133, Oklahoma City, Okla. State Department of Public Instruction, 1933.
737. COOK, ARTHUR N. "The High School Student and Freshman History." *Historical Outlook* 22: 228-30; May, 1931.
738. COXE, WARREN W., and CORNELL, ETHEL. *Pre-Service and In-Service Training of Elementary School Teachers.* Educational Monograph No. 2, Albany: New York State Teachers Association, 1932. 104 p.
739. CRIDER, BLAKE. "An Analysis and Interpretation of Errors Made in Translating Spanish Prose." *Modern Language Journal* 15: 123-26; November, 1930.
740. CRUTSINGER, GEORGE M. *Survey Study of Teacher Training in Texas, and a Suggested Program.* Contributions to Education, No. 537. New York: Teachers College, Columbia University, 1933. 226 p.
741. CUNNINGHAM, FLOYD F. "The Present Status of Geography in Teacher-Training Institutions." *The Teaching of Geography.* Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 546-51.
742. CURTIS, F. D. *Second Digest of Investigations in the Teaching of Science.* Philadelphia: P. Blakiston's Son Co., 1931. 425 p.
743. DAVIDSON, H. CARTER. "The Chicago Experiment in Freshman Speech." *English Journal (Coll. Ed.)* 20: 509-12; June, 1931.
744. DAVIDSON, H. CARTER. "Our College Curriculum in English." *English Journal (Coll. Ed.)* 20: 407-20; May, 1931.
745. DEVRICKS, ROBERT K. "Teacher Supply and Demand in Indiana." *Teachers College Journal* 3: 171-92; March, 1932.
746. DOUGLASS, HARL R. "The Relation of Pattern of High School Credits to Scholastic Success in College." *North Central Association Quarterly* 6: 283-97; December, 1931.
747. EELLS, WALTER C., and FOX, CLEMENT S. "Sex Differences in Mathematical Achievement of Junior College Students." *Journal of Educational Psychology* 23: 381-86; May, 1932.
748. ENGLEMAN, EDWARD U., and SHANNON, J. R. "An Analysis of Teachers' English Errors." *English Journal (Coll. Ed.)* 22: 45-52; January, 1933.
749. EURICH, ALVIN C. "Enlarging the Vocabularies of College Freshmen." *English Journal (Coll. Ed.)* 21: 135-41; February, 1932.
750. EURICH, ALVIN C. *Retention of Knowledge Acquired in a Course in General Psychology.* Unpublished study, University of Minnesota, 1932. 20 p.

751. Eurich, Alvin C. "Should Freshman Composition Be Abolished?" *English Journal (Coll. Ed.)* 21: 211-19; March, 1932.
752. Falk, H. A. "The Trend in Teacher Training." *School Executives Magazine* 52: 395-97; August, 1933.
753. Fearing, Flora May, and Fearing, Franklin. "The Present Status of Instruction in Social Psychology." *School and Society* 33: 804-8; June 13, 1931.
754. Fitch, Harry N. *An Analysis of the Supervisory Activities and Techniques of the Elementary School Training Supervisor in State Normal Schools and Teachers Colleges.* Contributions to Education, No. 476. New York: Teachers College, Columbia University, 1931. 130 p.
755. Flowers, John Garland. *Content of Student-Teaching Courses Designed for the Training of Secondary Teachers in State Teachers Colleges.* Contributions to Education, No. 538. New York: Teachers College, Columbia University, 1932. 81 p.
756. Floyd, Oliver, R. "The Preparation of Teachers of Social Studies in the Junior High School." *School Review* 41: 290-93; April, 1933.
757. Foster, I. Owen. "The Training of Junior High School Teachers." *Indiana University School of Education Bulletin* 7:62-68; November, 1930.
758. Fotos, John T. "Word and Idiom Frequency Counts in French and Their Value." *Modern Language Journal* 15: 344-53; February, 1931.
759. Frisbie, R. L., and Haggard, W. W. "College Chemistry in High School." *School Review* 41: 40-50; January, 1933.
760. Frutchey, Fred P. "Mathematics for Dairy Technology." *Educational Research Bulletin (Ohio State University)* 11: 94-96; February 17, 1932.
761. Gates, Arthur I. "The Place of Educational Psychology in the Curriculum for the Education of Teachers." *The Direct Contribution of Educational Psychology to Teacher Training.* Yearbook No. 20. National Society of College Teachers of Education. Chicago: University of Chicago Press, 1932. p. 21-35.
762. Gilchrist, Robert S. "Inadequacy of Training of Secondary-School Teachers and Principals." *School Review* 39: 140-46; February, 1931.
763. Goodrich, T. V. "Flunking College Freshmen." *School Executives Magazine* 51: 3-5, 30, 36; September, 1931.
764. Gray, William Scott. "Summary of Reading Investigations." *Elementary School Journal* 32: 447-63, 510-20, 587-94; February-April, 1932.
765. Graybeal, Elizabeth. *Physical Education for Women in the University of Minnesota.* Master's thesis, University of Minnesota, 1932. 105 p.
766. Grinnell, J. Erie. "Securing Adequate Training for Junior High School Teachers." *Educational Administration and Supervision* 17: 279-86; April, 1931.
767. Guiler, Walter Scribner. "Analysis of Capitalization Errors." *English Journal (Coll. Ed.)* 20: 21-26; January, 1931.
768. Guiler, Walter Scribner. "Improving College Freshmen in Spelling." *Journal of Educational Research* 24: 209-15; October, 1931.
769. Guiler, Walter Scribner. "Remediation of College Freshmen in Punctuation." *Peabody Journal of Education* 9: 152-58; November, 1931.
770. Hamer, Oliver S. *The Master Farmers of America and Their Education.* University of Iowa Studies in Education, Vol. 6, No. 2. Iowa City, Iowa: the University, 1930. 151 p.
771. Hartmann, George W. "The Constancy of Spelling Ability among Undergraduates." *Journal of Educational Research* 24: 303-5; November, 1931.
772. Hartmann, George W. "The Measurement of the Relative Interest Value of Representative Items Taught in Elementary Psychology." *Journal of Education Psychology* 24: 266-82; April, 1933.
773. Hartshorne, Hugh; Stearns, Helen R.; and Uphaus, Willard E. *Standards and Trends in Religious Education.* Yale Studies in Religious Education, No. 9. New Haven, Conn.: Yale University Press, 1933. 230 p.
774. Haynes, Wilma D. "After College What?" *Research Quarterly of the American Physical Education Association* 2: 214-16; March, 1931.
775. Hertzler, Silas. "Duties of Critic Teachers in the Secondary Schools of Indiana." *Peabody Journal of Education* 9: 90-97; September, 1931.

776. Hertzler, Silas. "Preparation and Experience of the Critic Teachers of the Secondary Schools of Indiana, 1929." *Educational Administration and Supervision* 16: 693-704; December, 1930.

777. Hill, H. C. "Social Studies and Professional Preparation." *Historical Outlook* 23: 214-17; May, 1932.

778. Hood, Grace Gordon. "Why College Women Do or Do Not Elect Home Economics." *Journal of Home Economics* 25: 559-62; August, 1933.

779. Horton, Clifford E. "A Report on Teaching Combinations in Physical Education in the High Schools of Illinois." *Research Quarterly of the American Physical Education Association* 4: 51-61; October, 1933.

780. Hughes, J. M., and Melby, E. O. "An Evaluation of Graduate Teacher Training Programs." *Journal of Educational Research* 23: 394-403; May, 1931.

781. Hughes, William Leonard. *The Administration of Health and Physical Education for Men in Colleges and Universities.* Contributions to Education, No. 541. New York: Teachers College, Columbia University, 1932. 181 p.

782. Hunsicker, Lilian M. "A Continuation Study of Overlapping of Courses in Departments of Education." *School and Society* 35: 165-66; January 30, 1932.

783. Hurd, Archer Willis. "Summary of Factual Questionnaire on the Training of Prospective Teachers of Science." *Science Education* 16: 134-39; December, 1931.

784. Hurd, Archer Willis. "What Is Professionalized Subject-Matter in Teacher-Training?" *Science Education* 16: 238-43; February, 1932.

785. Hutter, Harry K. "The Status of Geography in the Liberal-Arts Colleges of the United States." *The Teaching of Geography.* Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 556-59.

786. Jackson, C. O. "A Study of Current Practices in Student Teaching and Supervision." *Research Quarterly of the American Physical Education Association* 3: 152-58; March, 1932.

787. Jensen, Elizabeth Jutta. *The Organization and Administration of Physical Education for Women in the Public Junior Colleges in California.* Master's thesis, University of Southern California, 1931.

788. Jensen, Myrtle E. *An Analysis of the Objectives of Teaching History.* Master's thesis, University of Wisconsin, 1931.

789. Johnson, Palmer O. "An Evaluation of the Courses in Elementary Botany as Preparation for Sequent Courses." *Science Education* 15: 201-15; May, 1931.

790. Johnston, J. B., chairman. "The 1932 College Sophomore Testing Program." *Educational Record* 13: 290-343; October, 1932.

791. Johnston, J. B., chairman. "The 1933 College Sophomore Testing Program." *Educational Record* 14: 522-71; October, 1933.

792. Jones, Archie N. *The Training, Experience, and Activities of 176 Minnesota Music Teachers and Supervisors.* Master's thesis, University of Minnesota, 1931. 125 p.

793. Kemp, Edward L. *The Content of Educational Psychology as Evaluated and Determined by City Superintendents and Supervisors in the United States on the Basis of the Observed Professional Needs of Their Teachers.* Doctor's thesis, New York University, 1932. 119 p.

794. Kind, John L. "Some Phases of First and Second Year College German." *German Quarterly* 5: 178-87; November, 1932.

795. King, Chauncey B. "College Courses in Music Education." *Music Supervisors Journal* 20: 25-26, 28, 64; October, 1933.

796. Klein, Arthur J., director. *Survey of Land-Grant Colleges and Universities.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1930, No. 9. Washington, D. C.: Government Printing Office, 1930. Vol. I, 998 p.; Vol. II, 921 p.

797. Kline, Linus W. "Academic Training for Social Workers." *School and Society* 37: 18-26; January 7, 1933.

798. Kornhauser, Arthur W. "Changes in the Information and Attitudes of Students in an Economics Course." *Journal of Educational Research* 22: 288-98; November, 1930.

799. KYTE, GEORGE C. "Specific Requirements in the Two-Year Curricula for Training Elementary School Teachers in Representative Teachers Colleges and Normal Schools." *Educational Administration and Supervision* 17: 401-16; September, 1931.

800. LAWRENCE, A. J. "How Do We Compare with Others?" *Journal of Business Education* 7: 12-13; April, 1932.

801. LEACH, RAYMOND HOTCHKISS. "Courses in Religion in State Universities and Colleges." *School and Society* 37: 334-35; March 11, 1933.

802. LEIGHTON, FRANCES H. *A Basis for Building a Course in Economics of the Home.* Contributions to Education, No. 459. New York: Teachers College, Columbia University, 1931. 114 p.

803. LONGSTAFF, HOWARD P. "Analysis of Some Factors Conditioning Learning in General Psychology." *Journal of Applied Psychology* 16: 9-48; February, 1932.

804. LUCAS, LOREN T. "Are We Wasting Our Chemistry Students' Time?" *Science Education* 17: 236-40; October, 1933.

805. LUECK, WILLIAM R. *The Arithmetical and Algebraic Disabilities of Students Pursuing First Year College Physics.* University of Iowa Studies in Education, Vol. 8, No. 1. Iowa City, Iowa: the University, 1932. 48 p.

806. LYON, ELVA ANNE. "English in Junior Colleges." *Educational Research Bulletin (Ohio State University)* 10: 95-104; February 18, 1931.

807. MCCONN, MAX. "How Much Do College Students Learn?" *North American Review* 232: 446-54; November, 1931.

808. MACDONALD, MARION E. "The Contents of the Course, 'Introduction to Teaching.'" *Educational Administration and Supervision* 17: 9-13; January, 1931.

809. MARSHALL, EDNA M. *Evaluation of Types of Student-Teaching.* Contributions to Education, No. 488, New York: Teachers College, Columbia University, 1932. 92 p.

810. MARTIN, C. W. "Adverse Criticisms of Higher Education." *Peabody Journal of Education* 9: 3-8; July, 1931.

811. MERIAM, J. L. "Graduate Courses in Education." *Educational Administration and Supervision* 17: 574-82; November, 1931.

812. MILLER, GEORGE J. "The Training of Geography Teachers." *The Teaching of Geography.* Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 363-83.

813. MOORE, H. E. "A Study of the Subjects Taught by 1037 Teachers of Health and Physical Education." *Research Quarterly of the American Physical Education Association* 4: 29-37; October, 1933.

814. NELSON, GEORGE E. *Introductory Biological Sciences in the Traditional Liberal Arts College.* Contributions to Education, No. 501. New York: Teachers College, Columbia University, 1931. 135 p. (See also *Science Education* 15: 226-32; May, 1931.)

815. NELSON, M. J. "A Study in the Value of Entrance Requirements at Iowa State Teachers College." *School and Society* 37: 262-64; February 25, 1933.

816. NOFSKER, JULIA FRANK. "Home Economics Objectives as shown in a Survey of Educational Literature." *Journal of Home Economics* 24: 353-64; April, 1932.

817. NOLL, VICTOR H. "Science Teaching on the College Level." *A Program for Teaching Science.* Thirty-first Yearbook, Part 1. National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1932. p. 305-24.

818. OSBURN, WORTH JAMES. "Constitution of Our Courses in Principles of Teaching." *Educational Administration and Supervision* 17: 544-51; October, 1931.

819. PALMER, ARCHIE M. "Educating the Educators; In-Service Training Opportunities for College Teachers." *Peabody Journal of Education* 9: 239-43; January, 1932.

820. PANNELL, HENRY CLIFTON. *The Preparation and Work of Alabama High School Teachers.* Contributions to Education, No. 551. New York: Teachers College, Columbia University, 1933. 118 p.

821. PARK, MAXWELL GERALD. *Training in Objective Educational Measurements for Elementary School Teachers.* Contributions to Education, No. 520. New York: Teachers College, Columbia University, 1932. 100 p.

822. PARR, FRANK W. "Remedial Reading Instruction as a Phase of Personnel Work in Higher Education." *Research in Higher Education.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1931, No. 12. Washington, D. C.: Government Printing Office, 1932. p. 67-71.

823. PATTERSON, HOWARD V. *Observation and Practice-Teaching in Manual Arts and Trade Training.* Master's thesis, University of Minnesota, 1932. 93 p.
824. PAWELEK, STANLEY J. *The Certification of Industrial Teachers.* Master's thesis, University of Minnesota, 1932. 88 p.
825. PEIK, W. E. "Courses for High-School Teachers that Universities and Colleges Require, and the Problems Thereof." *School Life* 18: 71-72, 74; December, 1932.
826. PEIK, W. E. *Curricula for the Education of Teachers in Colleges and Universities.* Washington, D. C.: Office of Education, U. S. Dept. of the Interior, June, 1933. 74 p. (Mimeographed.)
827. PEIK, W. E. "Teacher Education Aims." *School Life* 18: 167-68; May, 1933.
828. PEIK, W. E. "Twenty-five Educational Aims of Universities and Colleges in the United States." *School Life* 18: 155-56; April, 1933.
829. POPENOE, PAUL B.; ADAMS, LUCY; and HADLEY, LAURA B. "Objectives in Teaching Family Relationships." *Journal of Home Economics* 24: 119-28; February, 1932.
830. POWERS, S. RALPH. "Programs for the Education of Science Teachers in State Teachers Colleges." *A Program for Teaching Science.* Thirty-first Yearbook, Part 1. National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1932. p. 325-44.
831. PRICE, MAURICE T. "The Next Step in Oriental Studies in Our American Universities and Colleges." *Historical Outlook* 23: 113-17; March, 1932.
832. PURIN, C. M. *A Standard German Vocabulary of 2000 Words and Idioms.* Chicago: University of Chicago Press, 1931. 195 p.
833. READY, MARIE M. *Physical Education and Health Education as a Part of All General Teacher-Training Curricula.* U. S. Dept. of the Interior, Office of Education, Bulletin, 1932, No. 10. Washington, D. C.: Government Printing Office, 1932. 47 p.
834. REED, RUFUS D. "Range of Subjects Taught, Teaching Load and Preparation in Science of the Science Teachers of New Jersey." *Journal of Chemical Education* 9: 326-43; February, 1932.
835. REEVES, FLOYD W.; PEIK, W. E.; and RUSSELL, JOHN DALE. *Instructional Problems in the University.* University of Chicago Survey, Vol. 4. Chicago: University of Chicago Press, 1933. 245 p.
836. REEVES, FLOYD W., and OTHERS. *The Liberal Arts College.* Chicago: University of Chicago Press, 1932. 715 p.
837. REICHERT, EDWIN CLARK. *The Effect of High School Economics upon Success in Junior College Economics.* Master's thesis, University of Minnesota, 1933. 39 p.
838. REINHARDT, EMMA. "General Introductory Courses in Education in Teachers' Colleges." *Elementary School Journal* 32: 57-66; September, 1931.
839. REYMERT, MARTIN L. and ARNOLD, H. J. "Survey of the Conditions and Facilities for the Teaching of Psychology in the State of Ohio." *Psychological Bulletin* 28: 342-66; May, 1931.
840. ROBBINS, FLOY. "Can Geography Contribute to an Interest in, and an Understanding of, Current Magazine Articles." *The Teaching of Geography.* Thirty-second Yearbook, National Society for the Study of Education. Bloomington, Ill.: Public School Publishing Co., 1933. p. 561-65.
841. ROBERTS, EARL F. *Survey of Practices in the Administration of the First Course in Educational Psychology in Teacher-Training Institutions in the United States.* Doctor's thesis, New York University, 1931. 114 p.
842. ROBINSON, F. P. "Can College Freshmen in the Lowest Tenth in Reading Be Aided Scholastically?" *School and Society* 34: 843-46; December 19, 1931.
843. RUCH, G. M. "Educational Psychology in Relation to Certification Requirements." *The Direct Contribution of Educational Psychology to Teacher Training.* Yearbook No. 20. National Society of College Teachers of Education. Chicago: University of Chicago Press, 1932. p. 93-100.
844. RUDOW, LEONARA W. *The Professional Training Needs of Minnesota Rural Teachers in Terms of Their Problems as Teachers.* Master's thesis, University of Minnesota, 1933. 215 p.
845. RUGG, EARLE U. *Curricula in Teachers Colleges and Normal Schools.* Washington, D. C.: Office of Education, U. S. Dept. of the Interior, June, 1933. 76 p. (Mimeographed.)

846. Rugg, Earle U. "Teachers Colleges: Composite View." *School Life* 18: 95-7; January, 1933.
847. Rugg, Earle U. "What Teachers Colleges Teach." *School Life* 18: 54-55, 57; November, 1932.
848. Salner, Edward, and Remmers, H. H. "Affective Selectivity and Liberalizing Influence of College Courses." *Journal of Applied Psychology* 17: 349-54; August, 1933.
849. Sampson, H. C.; Barrows, W. M.; and Tyler, R. W. *Check List of Student Reactions in Finding an Object under the Microscope.* (Discussed in: "Skill in Using a Microscope." *Journal of Higher Education* 2: 40-42; January, 1931.)
850. Scarf, R. C. and Noyer, Ralph. "Some Notes on a Curriculum for Latin Teachers." *Educational Administration and Supervision* 18: 125-32; February, 1932.
851. Scherf, C. H. "The Social Studies in Fifty Typical Junior Colleges in the United States." *Historical Outlook* 22: 7-17; January, 1931.
852. Schinnerer, Otto P., and Wendt, H. G. "A Suggested List of 1000 Active German Words." *German Quarterly* 6: 77-90; March, 1933.
853. Schleier, Louis M. *Problems in the Training of Certain Special-Class Teachers.* Contributions to Education, No. 475. New York: Teachers College, Columbia University, 1931. 138 p.
854. Sears, Edith K. "The Vocabularies of Two Direct-Method French Grammars for Beginners." *Modern Language Journal* 15: 599-606; May, 1931.
855. Selberg, Edith M. "Activity Analysis as a Basis for Supervision in General Science." *Science Education* 16: 188-91; February, 1932.
856. Seward, Georgene Hoffman. "Students' Reactions to a First Course in Psychology." *Journal of Applied Psychology* 15: 512-24; October, 1931.
857. Sherbon, Florence Brown and Ferris, Emily. *The Experience and Opinions of 350 Married Women Graduates of the University of Kansas with Reference to the University Curriculum and Problems of the American Home.* Studies in Education, Vol. 2, No. 2. Lawrence, Kans.: University of Kansas, 1931. 30 p.
858. Shields, H. G. "Does Economics Need a New Teaching Interpretation?" *Journal of Business Education* 6: 27-29, 46; June, 1931.
859. Shields, H. G. "Status of Junior College Business Education." *Junior College Journal* 2: 435-42; May, 1932.
860. Sholes, Elma E. *The Achievement of the Rural Teachers of Itasca County.* Master's thesis, University of Minnesota, 1930. 125 p.
861. Smith, Herbert Pelham. *Methods of Improving the Reading Rate of College Students.* Doctor's thesis, New York University, 1931. 165 p.
862. Smith, W. R. "A Questionnaire Study in Regard to the Attitudes of Men Students Toward the Required Physical Education Program." *Research Quarterly of the American Physical Education Association* 4: 246-48; March, 1933.
863. Starr, Helen M. *A Study of Student Attitude Toward Required Physical Education.* Unpublished study, University of Minnesota, 1931.
864. Steiner, L. E. "Contribution of High-School Chemistry toward Success in the College Chemistry Course." *Journal of Chemical Education* 9: 530-37; March, 1932.
865. Stratemeyer, Florence B. *The Effective Use of Curriculum Materials.* Contributions to Education, No. 460. New York: Teachers College, Columbia University, 1931. 161 p.
866. Stratton, Dorothy C. *Problems of Students in a Graduate School of Education.* Contributions to Education, No. 550. New York: Teachers College, Columbia University, 1933. 168 p.
867. Street, Claude W. "A Study of the Suitable Majors or Minors That Are Used in Combination with Physical Education." *Research Quarterly of the American Physical Education Association* 4: 38-50; October, 1933.
868. Sturtevant, Sarah M., and Strang, Ruth May. "A Method of Modifying a Professional Curriculum." *Teachers College Record* 33: 610-23; April, 1932.
869. Swan, Nora J. *Teachers' Activities in Primary Reading.* Master's thesis, University of Minnesota, 1932. 412 p.
870. Thompson, Milton W. "The Present Status of University Instruction in Political Science." *Historical Outlook* 24: 141-46; March, 1933.
871. Thompson, William H. "An Experiment in Remedial Reading." *School and Society* 34: 156-58; August 1, 1931.

872. Tostlebe, Milton Franklin. "Analysis of Adequacy of Training Teachers for the One-Room Rural School." *Educational Administration and Supervision* 19: 260-67; April, 1933.

873. Tubbs, Eston V. "Professional Courses Offered in Normal Schools and Teachers Colleges." *School Executives Magazine* 50: 275-76; February, 1931.

874. Tyrrell, Doris. "An Activity Analysis of Secretarial Duties As a Basis for an Office Practice Course." *Journal of Experimental Education* 1: 323-40; June, 1933.

875. Ullrich, Fred T. "Science Instruction in Four-Year Curriculums for Prospective Elementary-School Teachers." *Elementary School Journal* 31: 697-707; May, 1931.

876. Umstattd, J. G., and Johnson, Palmer O. "Difficulties Encountered by Beginning Teachers." *School Executives Magazine* 52: 404-5; August, 1933.

877. Voelker, Charles H. "Survey of Speech Correction in Colleges and Universities." *Quarterly Journal of Speech* 19: 403-8; June, 1933.

878. Voceler, Rudolph F. "Applications of Psycho-Physical Method in Determining an Intramural Sports Program." *Research Quarterly of the American Physical Education Association* 2: 114-18; October, 1931.

879. Weaver, J. Clark. "A Survey of Speech Curricula." *Quarterly Journal of Speech* 18: 607-12; November, 1932.

880. Weeks, Ila Delbert. "Difficulties of Rural Teachers." *Educational Administration and Supervision* 17: 619-23; November, 1931.

881. Weeks, Ila Delbert. "One and Two Year Rural Curricula Offered in Teachers Colleges." *Education* 52: 8-10; September, 1931.

882. Wesley, E. B. "Facts or Ideas in the Social Studies?" *Historical Outlook* 24: 28-30; January, 1933.

883. Wheeler, John T. "Determining the Agricultural Constants in a Preparatory Curriculum for High School Teachers of Agriculture in Georgia." Report in *Bulletin of the Georgia State College of Agriculture*, Vol. 20, No. 418. Athens, Ga.: State College of Agriculture, 1931. 151 p.

884. Whitney, F. L., and Milholland, John. "The Relationship of Teachers College Preparation to Subjects Taught After Graduation." *School and Society* 37: 533-36; April 22, 1933.

885. Williams, Kenneth P. *Report of the Committee on Required Courses in Education.* Presented at the 1932 meeting of the American Association of University Professors. 63 p. (Condensed in *Bulletin of the American Association of University Professors* 19: 173-200; March, 1933.)

886. Wilson, Robert B. *Training, Salary, Tenure, Experience, and Subject Combinations of the Science Teacher in the Accredited Public Non-North Central High Schools of Michigan.* Master's thesis, University of Michigan, 1931. 41 p.

887. Wray, Robert P. *Relative Importance of Items of Chemical Information for General Education.* Doctor's thesis, Pennsylvania State College, 1932.

888. Yeomans, Arthur J., and Woolbert, Richard L. "Report of Investigation of Practice Teaching in Standard Colleges." *Educational Administration and Supervision* 19: 386-90; May, 1933.

889. Zeleny, Florence K. "Remedial Instruction in Reading at the Freshman Level in a Teachers College." *Educational Administration and Supervision* 18: 607-20; November, 1932.